United Kingdom
en

Installation, user and service manual

Wall-hung gas condensing boilers

Quinta Pro

30 – 45 – 65 – 90 – 115

remeha the comfort innovators

Dear customer,

Thank you for purchasing this appliance.

Please read this manual carefully before using the product and keep it in a safe place for future reference.

In order to ensure continued safe and efficient operation we recommend that the product is regularly maintained. Our Service and After Sales organization can assist with this.

We hope you will receive many years of satisfactory service.

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ISO 9001

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1 Safety

1.1 General safety instructions

For the installer:

Danger
If you smell gas:
1. Do not use naked flames, do not smoke and do not operate electrical contacts or switches (doorbell, lighting, motor, lift etc).
2. Shut off the gas supply.
3. Open the windows.
4. Trace possible leaks and seal them off immediately.
5. If the leak is upstream of the gas meter, notify the gas company.

Danger
If you smell flue gases:
1. Switch the boiler off.
2. Open the windows.
3. Trace possible leaks and seal them off immediately.

Caution
After maintenance or repair work, check the entire heating installation to ensure that there are no leaks.

For the end user:

Danger
If you smell gas:
1. Do not use naked flames, do not smoke and do not operate electrical contacts or switches (doorbell, lighting, motor, lift etc).
2. Shut off the gas supply.
3. Open the windows.
4. Report any leaks immediately.
5. Evacuate the property.
6. Contact a qualified installer.

Danger
If you smell flue gases:
1. Switch the boiler off.
2. Open the windows.
3. Report any leaks immediately.
4. Evacuate the property.
5. Contact a qualified installer.

Warning
Do not touch the flue gas pipes. Depending on the boiler settings, the temperature of the flue gas pipes can rise to over 60°C.

Warning
Do not touch radiators for long periods. Depending on the boiler settings, the temperature of the radiators can rise to over 60°C.

Caution
Ensure that the boiler is regularly serviced. Contact a qualified installer or arrange a maintenance contract for the servicing of the boiler.

Caution
Only genuine spare parts may be used.

Note
Regularly check for the presence of water and pressure in the heating installation.

1.2 Recommendations

Danger
This appliance must not be used by people (and children) with a physical, sensory or mental disability, or by people with a lack of technical experience, unless they are supervised by someone who can assure their safety, or they have been instructed in the correct use of the appliance. Do not allow children to play with the appliance.

Warning
Installation and maintenance of the boiler must be carried out by a qualified installer in accordance with local and national regulations.

Warning
Removal and disposal of the boiler must be carried out by a qualified installer in accordance with local and national regulations.

Warning
If the mains lead is damaged, it must be replaced by the original manufacturer, the manufacturer's dealer or another suitably skilled person to prevent hazardous situations from arising.

Warning
Always disconnect the mains supply and close the main gas tap when working on the boiler.

Warning
Check the entire system for leaks after maintenance and servicing work.

Caution
- Make sure the boiler can be reached at all times.
- The boiler must be installed in a frost-free area.
- In the case of a fixed connection to the power cord, you must always install a main bipolar switch with an opening gap of at least 3 mm (EN 60335-1).
- Drain the boiler and central heating system if you are not going to use your home for a long time and there is a chance of frost.
- The frost protection does not work if the boiler is out of operation.
- The boiler protection only protects the boiler, not the system.
- Check the water pressure in the system regularly. If the water pressure is lower than 0.8 bar, the system must be topped up (recommended water pressure between 1.5 and 2 bar).

Note
Keep this document near to the boiler.

Note
Casing panels may only be removed for maintenance and servicing purposes. Refit all panels when maintenance work and servicing are complete.

Note
Instruction and warning labels must never be removed or covered and must be clearly legible throughout the entire service life of the boiler. Replace damaged or illegible instruction and warning labels immediately.

Note
Modifications to the boiler require the written approval of **Remeha**.

1.3 Liabilities

1.3.1 Manufacturer's liability

Our products are manufactured in compliance with the requirements of the various Directives applicable. They are therefore delivered with the CE marking and any documents necessary. In the interests of the quality of our products, we strive constantly to improve them. We therefore reserve the right to modify the specifications given in this document.

Our liability as manufacturer may not be invoked in the following cases:
- Failure to abide by the instructions on installing the appliance.
- Failure to abide by the instructions on using the appliance.
- Faulty or insufficient maintenance of the appliance.

1.3.2 Installer's liability

The installer is responsible for the installation and initial commissioning of the appliance. The installer must abide by the following instructions:

- Read and follow the instructions given in the manuals provided with the appliance.
- Install the appliance in compliance with prevailing legislation and standards.
- Carry out initial commissioning and any checks necessary.
- Explain the installation to the user.
- If maintenance is necessary, warn the user of the obligation to check the appliance and keep it in good working order.
- Give all the instruction manuals to the user.

1.3.3 User's liability

To guarantee optimum running of the installation, you must abide by the following instructions:

- Read and follow the instructions given in the manuals provided with the appliance.
- Call on a qualified professional to carry out installation and initial commissioning.
- Get your installer to explain your installation to you.
- Have the required checks and services done by a qualified professional.
- Keep the instruction manuals in good condition close to the appliance.

2 About this manual

2.1 Symbols used

2.1.1 Symbols used in the manual

This manual uses various danger levels to draw attention to special instructions. We do this to improve user safety, to prevent problems and to guarantee correct operation of the appliance.

Danger
Risk of dangerous situations resulting in serious personal injury.

Danger of electric shock
Risk of electric shock.

Warning
Risk of dangerous situations resulting in minor personal injury.

Caution
Risk of material damage.

Note
Please note: important information.

See
Reference to other manuals or pages in this manual.

2.2 Abbreviations

DHW	Domestic hot water
PCU	PCB for managing burner operation
PWM	Pulse wide modulation
SCU	Control panel PCB
SU	Safety PCB

3 Technical specifications

3.1 Homologations

3.1.1 Certifications

Tab.1 Certifications

CE identification number	**PIN 0063CL3333**
NOx class	**5 (EN 15502–1)**
Type of connection	B_{23}, B_{23P}, B_{33}
	C_{13}, C_{33}, C_{43}, C_{53}, C_{63}, C_{83}, C_{93}

3.1.2 Unit categories

Category	Gas type	Connection pressure (mbar)
$II_{2H3B/P}$	G20 (H gas) G30/G31 (butane/ propane)	20 30-50

3.1.3 Directives

In addition to the legal requirements and guidelines, the supplementary guidelines in this manual must also be followed.

Supplements or subsequent regulations and guidelines that are valid at the time of installation shall apply to all regulations and guidelines specified in this manual.

3.1.4 Factory test

Before leaving the factory, each boiler is optimally set and tested for:

- Electrical safety.
- Adjustment of (O_2/CO_2).
- Water tightness.
- Gas tightness.
- Parameter setting.

3.2 Technical data

Tab.2 General

Quinta Pro			30	45	65	90	115
Nominal output (Pn) Central heating operation (80°C/ 60°C)	min.–max. (1)	kW	8.0–29.3 29.3	8.0–40.0 40.0	12.0–61.0 61.0	14.1–84.2 84.2	20.5–107.0 107.0
Nominal output (Pn) Central heating operation (50°C/ 30°C)	min.–max. (1)	kW	8.9–31.4 31.4	8.9–43.0 43.0	13.3–65.0 65.0	15.8–89.5 89.5	22.7–114.0 114.0
Nominal input (Qn) Central heating operation (Hi)	min.–max. (1)	kW	8.2–30.0 30.0	8.2–41.2 41.2	12.2–62.0 62.0	14.6–86.0 86.0	19.6–110.2 110.2
Nominal input (Qn) CH operation (Hi) G31 (propane)	min	kW	8.8	8.8	12.2	22.1	21.2

Quinta Pro			30	45	65	90	115
Nominal input (Qn) Central heating operation (Hs)	min.– max. (1)	kW	9.1–33.3 33.3	9.1–45.7 45.7	13.6–68.8 68.8	16.2–95.5 95.5	21.9–122.4 122.4
Full load central heating efficiency (Hi) (80°C/60°C)		%	97.5	97.2	98.3	97.9	97.1
Full load central heating efficiency (Hi) (50°C/30°C)		%	102.9	102.9	104.6	104.1	102.5
Low load central heating efficiency (Hi) (return temperature 60°C)		%	97.5	97.5	98.3	96.6	96.5
Partial load CH efficiency (return temperature 30°C)		%	108.5	108.4	108.9	108.1	108.0
(1) Factory setting							

Tab.3 Gas and flue gas data

Quinta Pro			30	45	65	90	115
Gas inlet pressure G20 (H gas)	min.– max.	mbar	17–25	17–25	17–25	17–25	17–25
Gas inlet pressure G31 (propane)	min.– max.	mbar	37–50	37–50	37–50	37–50	37–50
Gas consumption G20 (H gas)(1)	min.– max.	m^3/h	0.9–3.2	0.9–4.4	1.3–6.6	1.5–9.1	2.0–11.7
Gas consumption G31 (propane)(2)	min.– max.	m^3/h	0.4–1.2	0.4–1.7	0.5–2.5	0.9–3.5	0.9–4.5
Gas resistance between boiler connection and measurement point on the gas valve unit G20 (H gas)			0.5	1.0	2.0	2.5	3.0
BREAM NOx		mg/kWh	37	37	32	29	35
Flue gas quantity	min.– max.	kg/h g/s	14–50 4.1–15.1	14–69 4.1–20.7	21–104 5.9–30.1	28–138 6.5–39.5	36–178 8.0–52.8
Flue gas temperature	min.– max.	°C	30–65	30–67	30–68	30–68	30–72
Maximum counter pressure		Pa	70	150	100	160	220
(1) Gas consumption based on lower heating value under standard conditions: T=288.15 K, p=1013.25 mbar. Gag 30.33; G25 29.25; G31 88.00 MJ/m3							

Tab.4 Central heating circuit data

Quinta Pro			30	45	65	90	115
Water content		l	6.2	6.2	7.9	11.5	11.5
Water operating pressure	min	bar	0.8	0.8	0.8	0.8	0.8
Water operating pressure (PMS)	max	bar	4.0	4.0	4.0	4.0	4.0
Water temperature	max	°C	110.0	110.0	110.0	110.0	110.0
Operating temperature	max	°C	90.0	90.0	90.0	90.0	90.0
Hydraulic resistance (ΔT=20K)		mbar	70	90	130	140	250

Tab.5 Electrical data

Quinta Pro			30	45	65	90	115
Supply voltage		VAC	230	230	230	230	230
Power consumption - full load	max	W	39	68	88	125	199
Power consumption - low load	max	W	18	18	23	20	45
Power consumption - standby	max	W	5	5	6	4	7

Quinta Pro			30	45	65	90	115
Electrical protection index(1)		IP	X4D(3)	X4D(3)	X4D(3)	X4D(3)	X4D(3)
Fuses	Main PCU	A	6.3 2.0	6.3 2.0	6.3 2.0	6.3 2.0	6.3 2.0
(1) Splashproof; under certain conditions, the boiler may be installed in damp areas, such as bathrooms.							

Tab.6 Other data

Quinta Pro			30	45	65	90	115
Total weight (empty)		kg	53	53	60	67	68
Minimum mounting weight(1)		kg	49	49	56	65	65
Average acoustic level at a distance of one metre from the boiler		dB(A)	38	45	45	52	51
(1) Without front panel.							

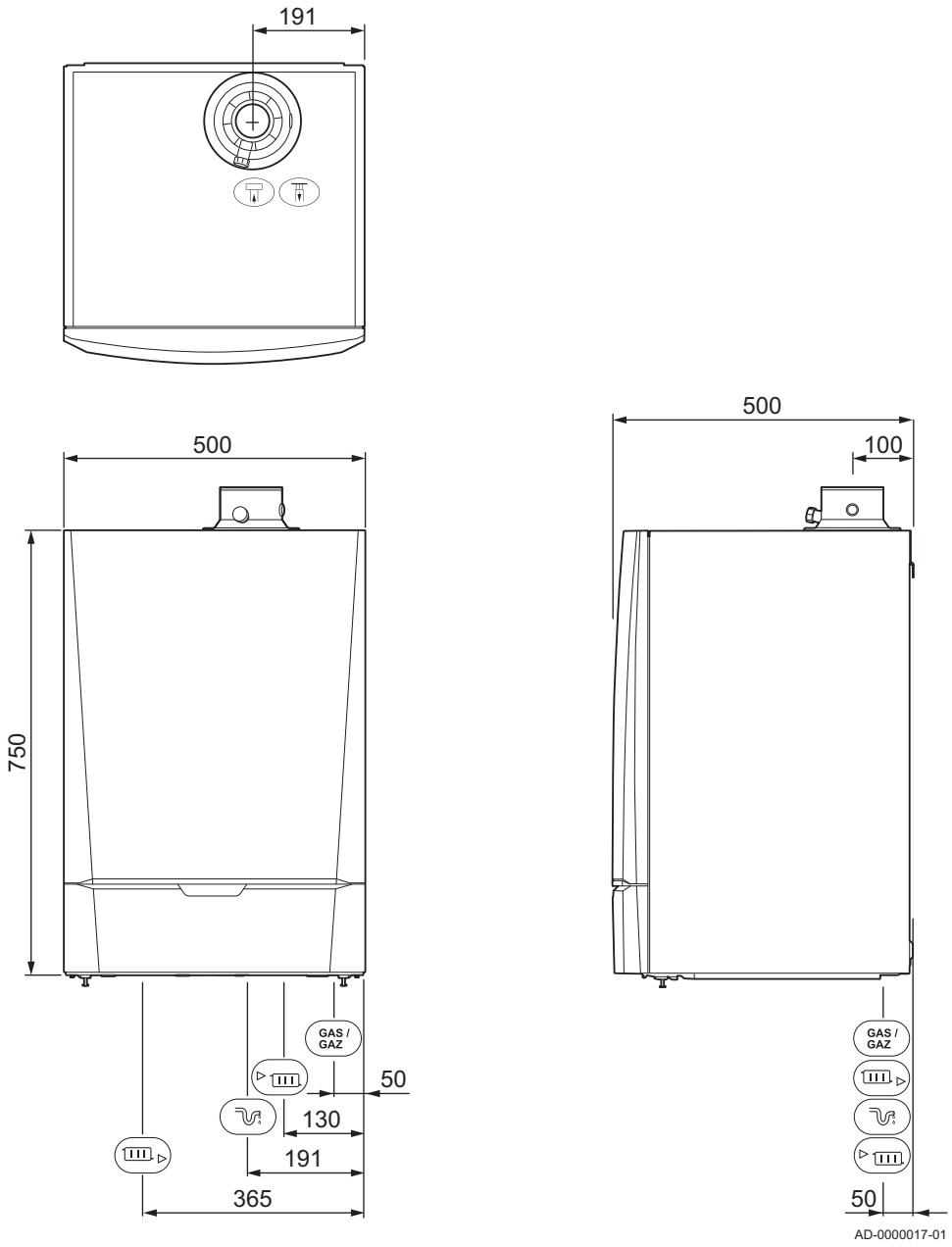
Tab.7 Technical parameters

Quinta Pro			30	45	65	90	115
Condensing boiler			Yes	Yes	Yes	Yes	Yes
Low-temperature boiler(1)			Yes	Yes	Yes	Yes	Yes
B1 boiler			No	No	No	No	No
Cogeneration space heater			No	No	No	No	No
Combination heater			Yes	Yes	Yes	No	No
Rated heat output	*Prated*	kW	29	40	61	84	107
Useful heat output at nominal heat output and high temperature operation(2)	P_4	kW	29.3	40.0	61.0	84.2	107.0
Useful heat output at 30% of rated heat output and low temperature regime(5)	P_1	kW	9.8	13.4	20.3	27.9	35.7
Seasonal space heating energy efficiency	η_s	%	93	93	93	-	-
Useful efficiency at rated heat output and high temperature regime(6)	η_4	%	87.8	87.6	88.6	88.2	87.5
Useful efficiency at 30% of rated heat output and low temperature regime(5)	η_1	%	97.7	97.7	98.1	97.4	97.3
Auxiliary electricity consumption							
Full load	*elmax*	kW	0.039	0.068	0.088	0.125	0.199
Part load	*elmin*	kW	0.018	0.018	0.023	0.020	0.045
Standby mode	P_{SB}	kW	0.005	0.005	0.006	0.004	0.007
Other items							
Standby heat loss	P_{stby}	kW	0.101	0.101	0.110	0.123	0.123
Ignition burner power consumption	P_{ign}	kW	-	-	-	-	-
Annual energy consumption	Q_{HE}	kWh GJ	-	-	-	-	-
Sound power level, indoors	L_{WA}	dB	46	53	53	60	59
Emissions of nitrogen oxides	NO_X	mg/kWh	32	33	29	41	41
(1) Low temperature means 30°C for condensing boilers, 37°C for low temperature boilers and 50°C (at heater inlet) for other heating appliances. (2) High temperature operation means 60°C return temperature at heater inlet and 80°C feed temperature at heater outlet.							

See
The back cover for contact details.

3.3 Dimensions and connections

Fig.1 Dimensions

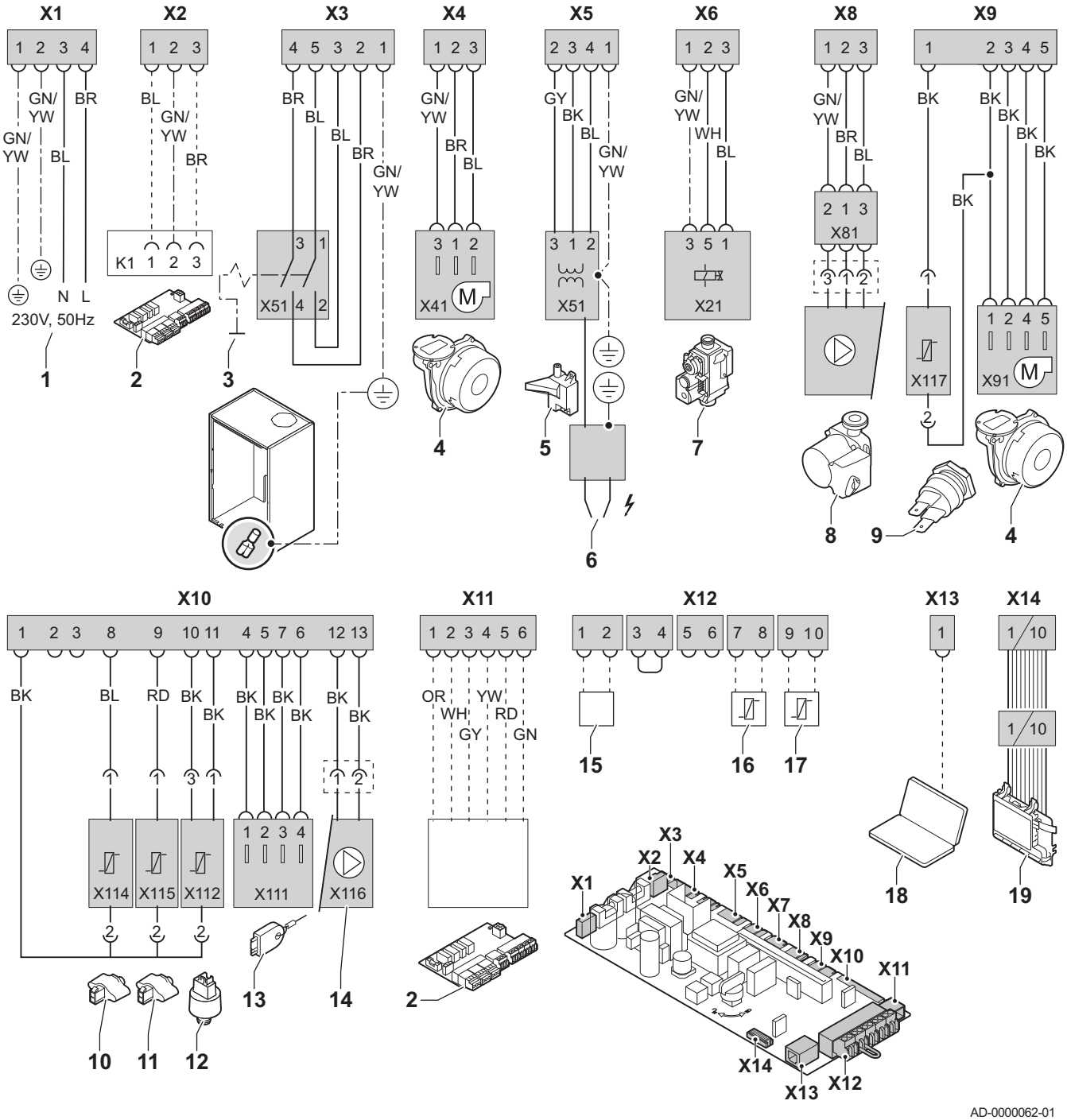


- Flue gas outlet connection:
  - Ø 80 mm (≤ 45 kW)
  - Ø 100 mm (≥ 65 kW)
- Air supply connection:
  - Ø 125 mm (≤ 45 kW)
  - Ø 150 mm (≥ 65 kW)

- Siphon connection, 32 mm
- CH supply connection; 1 ¼ inch male thread
- CH return connection; 1 ¼ inch male thread
- GAS/GAZ Gas connection; ¾ inch male thread

3.4 Electrical diagram

Fig.2 Electrical diagram



1 Power supply (P)
2 Extended PCB (SCU)
3 On/off switch (S)
4 Fan (FAN)
5 Ignition transformer (IT)
6 Ignition pin (E)
7 Gas combination block (GB)
8 Circulating pump (pump A)
9 High limit switch (HLS)
10 Return sensor (RTS)
11 Flow sensor (FTS)
12 Pressure switch (PS)
13 Storage parameter (PSU)
14 Circulating pump (PWM pump)
15 Thermostat (OT)
16 Outside sensor (OS)
17 Calorifier sensor (WS)
18 Computer connection (PC)
19 Display (DIS)

4 Description of the product

4.1 General description

The Quinta Pro boiler is a high-efficiency wall-hung gas boiler with the following properties:

- High-efficiency heating.
- Option to produce domestic hot water using a separate hot water appliance.
- Limited emissions of polluted substances.
- Ideal choice for cascade configurations.

4.2 Operating principle

4.2.1 Circulating pump

The boiler is supplied without a pump. Take the boiler resistance and system resistance into account when selecting a pump.

Caution
The pump may have a maximum input of 200 W. Use an auxiliary relay for a pump with greater power.

See
Technical data, page 11

If possible, install the pump directly under the boiler on the return connection.

For more information, see
Connecting the heating circuit, page 22

4.2.2 Cascade system

The boiler is ideally suited for a cascade system. There are a number of standard solutions available.

Note
Contact us for more information.

4.2.3 Water flow

The modulating control of the boiler limits the maximum temperature difference between the flow and return and the maximum rise velocity of the flow temperature. As a result, the boiler is virtually unaffected by low water flow. In all cases, maintain a minimum water flow of 0.4 m^3/h. If progressive calorifier control is activated with parameter P35, then maintain a minimum water flow of 0.8 m^3/h.

4.2.4 Calorifier connection

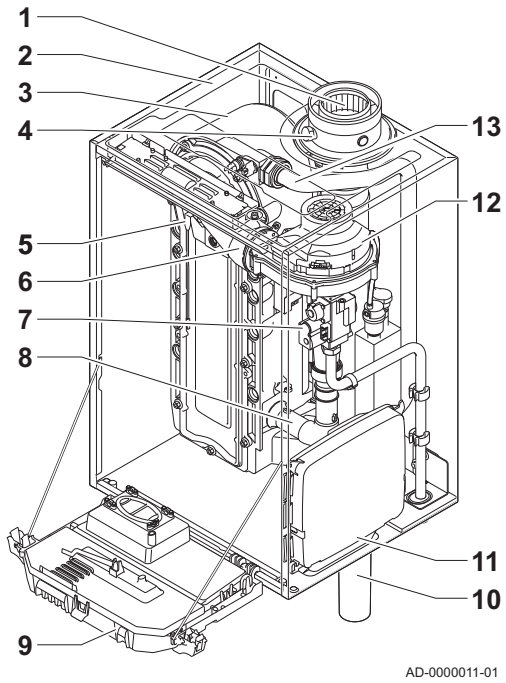
A calorifier can be connected to the boiler. Our range includes various calorifiers.

Note
Contact us for more information.

Connect the calorifier to the boiler with a calorifier pump. A three-way valve is not suitable due to the hydraulic resistance. An optional PCB is required to connect a calorifier pump.

4.3 Main components

Fig.3 Main components

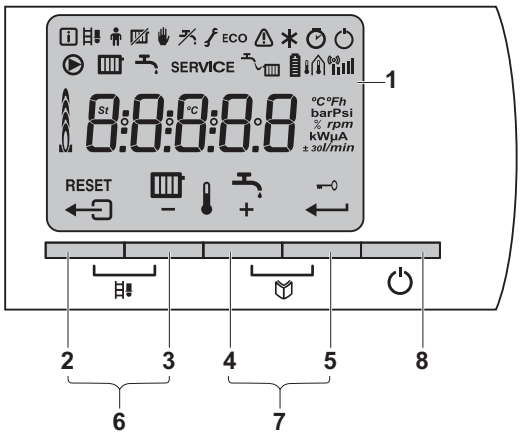


1 Flue gas outlet/air supply
2 Casing/air box
3 Heat exchanger (CH)
4 Flue gas measuring point
5 Ionisation/ignition electrode
6 Mixer tube
7 Combined gas valve unit
8 Air intake silencer
9 Instrument box
10 Siphon
11 Housing for PCBs
12 Fan
13 Water flow pipe

4.4 Control panel description

4.4.1 What each key means

Fig.4 Control panel



1 Display
2 ← Escape or **RESET** key
3 CH temperature or − key
4 DHW temperature or + key
5 ← Enter or Cancel key lockout
6 Chimney-sweeping keys
Press the **2** and **3** keys simultaneously.
7 Menu keys
Press the **4** and **5** keys simultaneously.
8 On/off switch

4.4.2 Meaning of the symbols on the display

Tab.8 Symbols on the display

	Information menu: Read out various current values.
	Chimney-sweeping position: Forced high or low load for O_2/CO_2 measurement.
	User menu: Parameters at user level can be changed.
	Central heating function off: The heating function is deactivated.
	Manual mode: Boiler is set to manual mode.
	DHW function off: The DHW function is switched off.
	Service menu: Parameters at installer level can be changed.
ECO	ECO setting: The economy setting is activated.
	Fault: Boiler indicates a fault. This can be seen from the E code and red display.

✱	Frost protection: Boiler is running in frost protection mode.
	Hour counter menu: Read out the operating hours, number of successful starts and hours on mains supply.
	On/off switch: After 5 lockouts, the boiler must be switched off/on again.
	Circulating pump: The pump is running.
	CH function: Access to CH temperature parameter.
	DHW function: Access to DHW temperature parameter.
SERVICE	Yellow display with the symbols: + SERVICE + (maintenance message).
	Water pressure: The water pressure is too low.
	Battery symbol: Status of battery in wireless controller.
	Signal strength symbol: Signal strength of the wireless controller.
	Burner level: Boiler is running at full or part load.
	Key lockout: Key lockout is activated.

4.5 Standard delivery

The delivery includes:

- The boiler, with mains lead
- Suspension bracket and fasteners for wall mounting
- Mounting template
- Connection cable for pump (Quinta Pro 90/115)
- Documentation

This manual only deals with the standard scope of supply. For the installation or mounting of any accessories delivered with the boiler, refer to the corresponding mounting instructions.

4.6 Accessories and options

Various accessories can be obtained for the boiler.

Note
Contact us for more information.

5 Before installation

5.1 Installation regulations

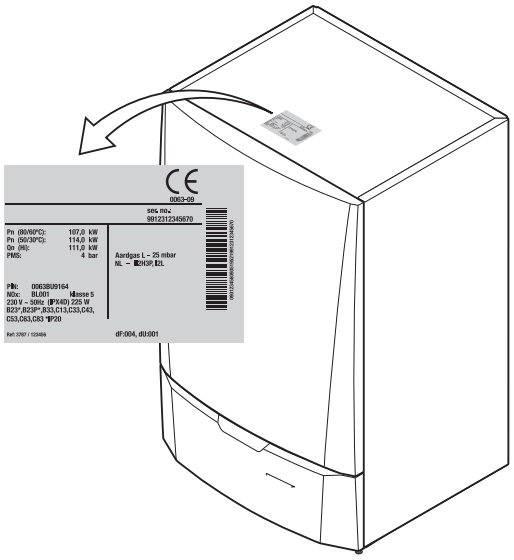
Warning
The installer must be registered with Gas Safe and have the correct ACS qualifications.

Note
Practical guidelines — see the latest version.

5.2 Choice of the location

5.2.1 Type plate

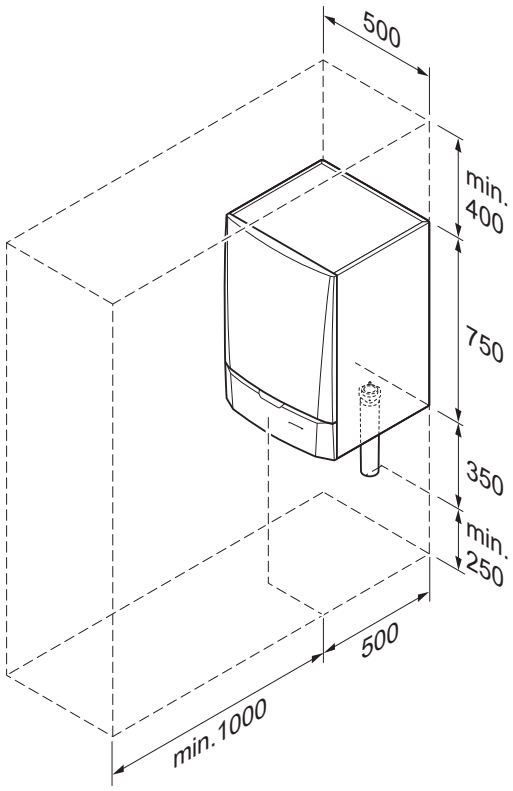
Fig.5 Position of type plate



AD-0000013-01

The type plate on top of the boiler features the boiler serial number and important boiler specifications, for example the model and unit category. The dF and dU codes are also stated on the type plate.

Fig.6 Installation area



5.2.2 Boiler position

- Use the guidelines and the required installation space as a basis for determining the correct place to install the boiler.
- When determining the correct installation space, take account of the permitted position of the flue gas discharge and/or air supply outlet.
- Ensure that there is sufficient space around the boiler for good access and ease of maintenance.

Danger
It is forbidden to store, even temporarily, combustible products and substances in the boiler or near the boiler.

Warning
- Fix the appliance to a solid wall capable of bearing the weight of the boiler when full of water and fully equipped.

Caution
- The boiler must be installed in a frost-free area.
- The boiler must have an earthed electrical connection.
- A connection to the sewer must be present for the condensate drain close to the boiler.

5.3 Ventilation

The installation must comply with BS 5540 (part 1 + 2), BS 6640 and IGUP/10.

6 Installation

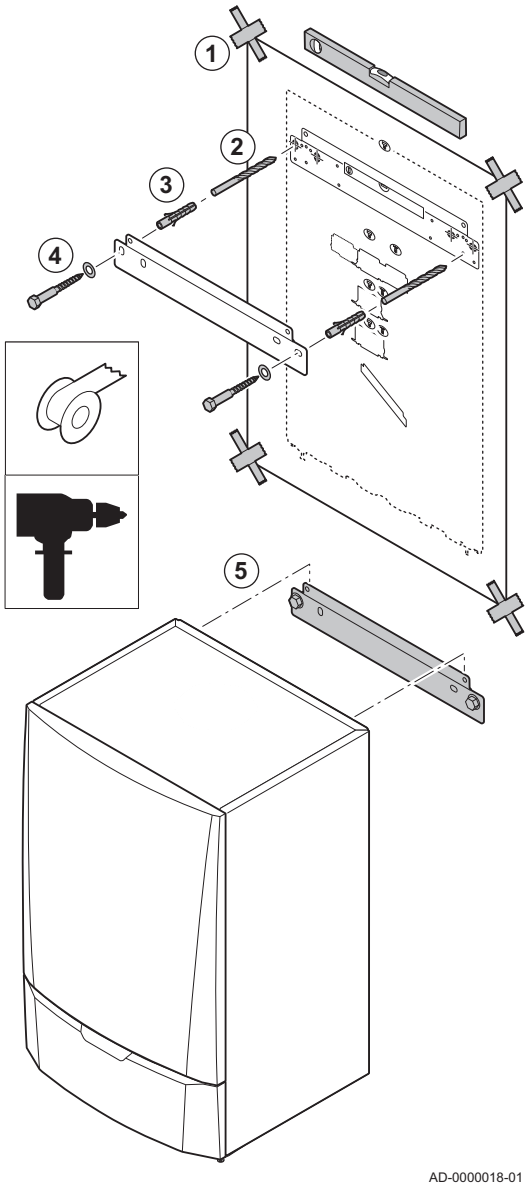
6.1 General

Warning
The boiler must be installed by a qualified installer in accordance with local and national regulations.

6.2 Preparation

6.2.1 Positioning the boiler

Fig.7 Mounting the boiler



The fitting bracket on the back of the casing can be used to mount the boiler directly on the suspension bracket.

The boiler is supplied with a mounting template.

1. Attach the mounting template of the boiler to the wall using adhesive tape.

Warning
- Use a level to check whether the mounting template is hanging perfectly horizontally.
- Protect the boiler against building dust and cover the connection points for the flue gas outlet and air supply. Only remove this cover to assemble the relevant connections.

2. Drill 2 holes of Ø 10 mm.

Note
The extra holes are intended for use in the event that one of the two fastening holes is not suitable for correct fastening of the plug.

3. Fit the Ø 10 mm plugs.
4. Attach the suspension bracket to the wall with the Ø 10 mm bolts supplied.
5. Mount the boiler on the suspension bracket.

6.3 Water connections

6.3.1 Rinsing the system

The installation must be cleaned and flushed in accordance with BS 7593 (2006).

Before a new CH boiler can be connected to an existing or new installation, the entire installation must be thoroughly cleaned and flushed. This step is absolutely crucial. The flushing helps to remove residue from the

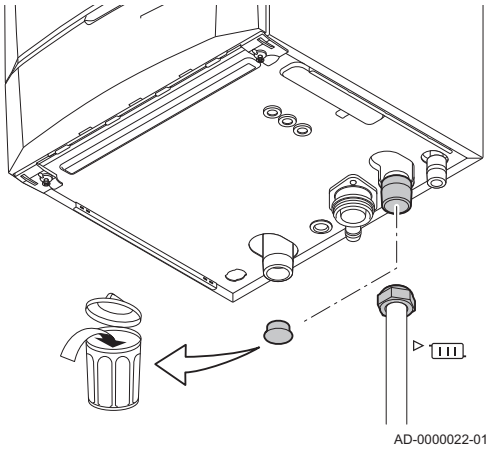
installation process (weld slag, fixing products etc.) and accumulations of dirt (silt, mud etc.)

Note
Flush the CH installation with a volume of water equivalent to at least three times the volume of the CH installation. Flush the DHW pipes with at least 20 times the volume of the pipes.

Note
Due to the presence of an aluminium heat exchanger, suitable chemicals and the correct use of these chemicals should be discussed with specialist water treatment companies.

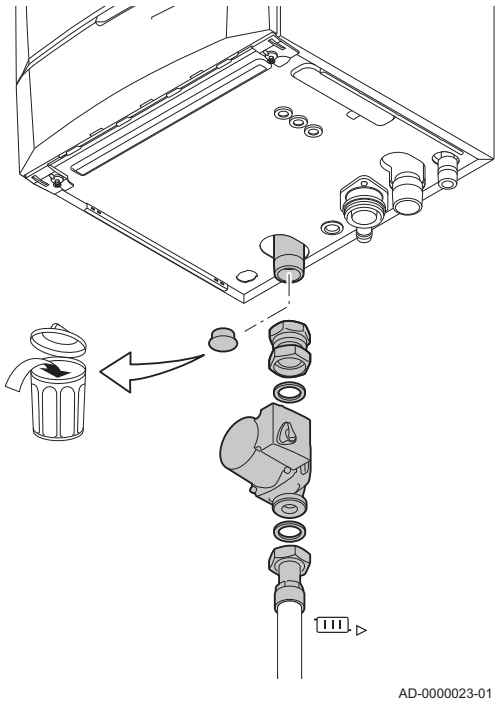
6.3.2 Connecting the heating circuit

Fig.8 Connecting the CH flow



1. Remove the dust cap from the CH flow connection ▸ at the bottom of the boiler.
2. Fit the outlet pipe for CH water to the CH flow connection.

Fig.9 Connecting the CH return



3. For filling and tapping the boiler, install a filling and drain valve in the system.
4. Remove the dust cap from the CH return connection ▸ at the bottom of the boiler.
5. Fit the inlet pipe for CH water to the CH return connection.
6. Install the pump in the CH return pipe (if applicable).

See
For the pump's electrical connection: Connecting the pump, page 30

Note
Fit a service shut-off valve in the CH flow pipe and the CH return pipe to facilitate servicing work.

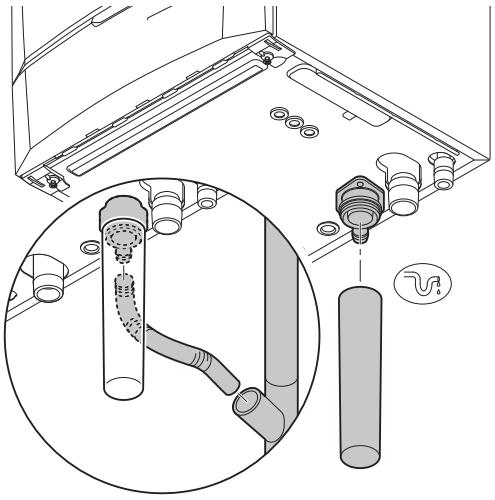
Caution
- When fitting service shut-off valves, position the filling and drain valve, the expansion vessel and the safety valve between the shut-off valve and the boiler.
- Carry out any welding work required at a safe distance from the boiler or before the boiler is fitted.
- If using synthetic pipes, follow the manufacturer's (connection) instructions.
- When installing open-vented systems, the cold feed and expansion tank heights must comply with the requirements laid down in the Health and Safety Executive publication PM5. The Quinta Pro boilers require a minimum static height of 3 m (Quinta Pro 30/45/65/90) or 5 m (Quinta Pro 115).

6.3.3 Connecting the expansion vessel

1. Ensure that there is an expansion vessel with the correct volume and inlet pressure.
2. Fit the expansion vessel on the central heating return pipe ▸

6.3.4 Connecting the condensate discharge pipe

Fig.10 Connecting the condensate discharge pipe



1. Fit a plastic drain pipe of Ø 32 mm or larger, terminating in the drain.
2. Insert the flexible condensate drain hose into the pipe.
3. Fit a stench-trap or siphon in the drain pipe.

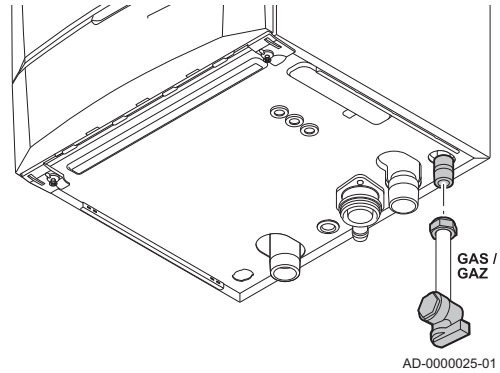
Danger
The siphon must always be filled with water. This prevents flue gases from entering the room.

Caution
- Never seal the condensate drain.
- The drain pipe must slope down at least 30 mm per metre, the maximum horizontal length is 5 metres.
- Condensed water must not be discharged into a gutter.

6.4 Gas connection

Warning
- Before starting work on the gas pipes, turn off the main gas tap.
- Before installing, check that the gas meter has sufficient capacity. Take into account the consumption of all appliances.
- Notify the local energy company if the gas meter has insufficient capacity.

Fig.11 Connecting the gas pipe



1. Remove the dust cap from the gas supply pipe GAS/GAZ at the bottom of the boiler.
2. Fit the gas supply pipe.
3. Fit a gas tap in this pipe, directly underneath the boiler.
4. Fit the gas pipe to the gas tap.

Caution
- Remove dirt and dust from the gas pipe.
- Always perform welding work at a sufficient distance from the boiler.
- Place a gas filter to prevent pollution of the gas valve unit.

6.5 Air supply/flue gas connections

The boiler is suitable for the following types of flue gas connections:

For more information, see
Certifications, page 11

6.5.1 Classification

This classification is specified in more detail in the table in accordance with CE.

Tab.9 Types of flue gas connections

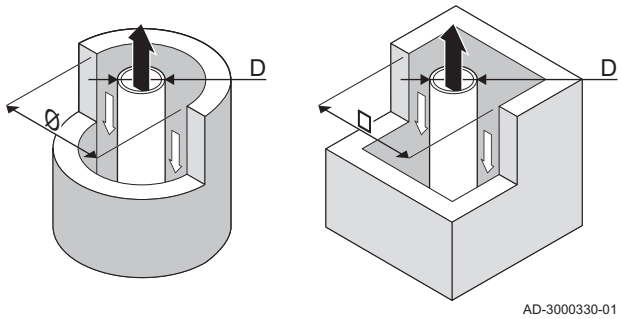
Type	Version	Description
B23 B23P(1)	Open	• Without down-draught diverter. • Flue gas discharge via the roof. • Air from the installation area.

Type	Version	Description
B33	Open	• Without down-draught diverter. • Joint flue gas discharge via the roof. • Flue gas discharge rinsed with air, air from the installation area (special construction).
C13	Closed	• Discharge in the outside wall. • Inlet opening for the air supply is in the same pressure zone as the discharge (e.g. a combined outside wall feed-through).
C33	Closed	• Flue gas discharge via the roof. • Inlet opening for the air supply is in the same pressure zone as the discharge (e.g. a concentric roof feed-through).
C43(2)	Closed/cascade	• Joint air supply and flue gas discharge duct (CLV system): - Concentric. - Eccentric: air supply from the shaft. • Cascade overpressure
C53	Closed	• Closed unit. • Separate air supply duct. • Separate flue gas discharge duct. • Discharging into various pressure areas.
C63	Closed	• This type of unit is supplied by the manufacturer without a supply and discharge system.
C83(3)	Closed	• The appliance can be connected to a semi-CLV system (with common flue gas outlet).
C93(4)	Closed	• Air supply and flue gas discharge duct in shaft or ducted: - Concentric. - Eccentric: air supply from the shaft. - Flue gas discharge via the roof. - Inlet opening for the air supply is in the same pressure zone as the discharge.

(1) Also pressure class P1
(2) EN 15502-2-1: 0.5 mbar suction due to depression
(3) 4 mbar depression can occur
(4) See table for minimum dimensions of shaft or duct

■ Shaft dimensions

Fig.12 Minimum dimensions of shaft or duct



Tab.10 Minimum dimensions of shaft or duct

Type	Version	Diameter (D)	Without air supply		With air supply	
			Ø duct	□ duct	Ø duct	□ duct
C93	Rigid	60 mm	110 mm	110 x 110 mm	120 mm	110 x 110 mm
		80 mm	130 mm	130 x 130 mm	140 mm	130 x 130 mm
		100 mm	160 mm	160 x 160 mm	170 mm	160 x 160 mm
C93	Flexible	60 mm	110 mm	110 x 110 mm	120 mm	110 x 110 mm
		80 mm	130 mm	130 x 130 mm	145 mm	130 x 130 mm
		100 mm	160 mm	160 x 160 mm	170 mm	160 x 160 mm

Type	Version	Diameter (D)	Without air supply		With air supply	
			Ø duct	□ duct	Ø duct	□ duct
C93	Concentric	60/100 mm	120 mm	120 x 120 mm	120 mm	120 x 120 mm
		80/125 mm	145 mm	145 x 145 mm	145 mm	145 x 145 mm
		100/150 mm	170 mm	170 x 170 mm	170 mm	170 x 170 mm

6.5.2 Outlets

Drain systems (roof feed-through and outside wall feed-through) must be supplied by the following manufacturers:

- Centrotherm
- Cox Geelen
- Muelink & Grol
- Natalini
- Poujoulat
- Ubbink

Note
Where regulations stipulate that a wire grille must be fitted, use a suitable grille made from stainless steel. There must be a minimum distance of 50 mm between each part of the outlet and the grille.

Boiler-specific roof and outside wall feed-through kits are also available.

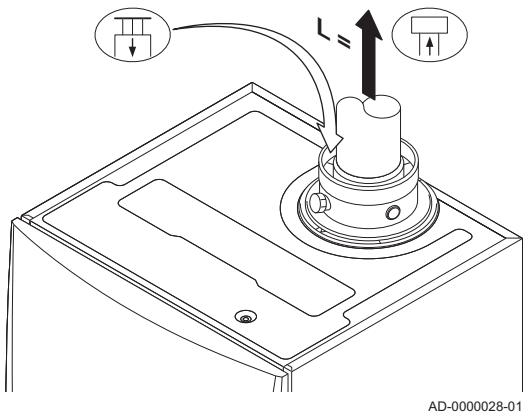
Note
Contact us for more information.

6.5.3 Length of the air and flue gas pipes

Note
- When using bends, the maximum chimney length (L) must be shortened according to the reduction table.
- The boiler is also suitable for longer chimney lengths and diameters other than those specified in the tables. Contact us for more information.

■ Room-ventilated version (B23, B23P, B33)

Fig.13 Room-ventilated version



Flue gas outlet connection
Air supply connection

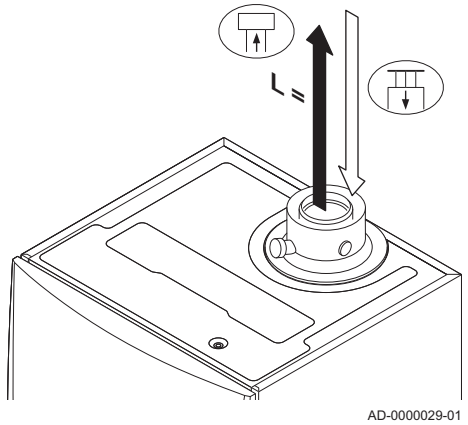
With a room-ventilated version, the air supply opening stays open; only the flue gas outlet opening is connected. This will ensure that the boiler obtains the necessary combustion air directly from the installation area.

Caution
- The air supply opening must stay open.
- The installation area must be equipped with the necessary air supply openings. These openings must not be obstructed or shut off.

Tab.11 Maximum chimney length (L)

Quinta Pro	Diameter			
	80 mm	90 mm	100 mm	110 mm
30	40 m	40 m	40 m	40 m
45	33 m	40 m	40 m	40 m
65	10 m	18 m	27 m	40 m
90	9 m	16 m	24 m	40 m
115	8 m	12 m	19 m	37 m

Fig.14 Room-sealed version (concentric)



Room-sealed version (C13, C33, C43, C63, C93)

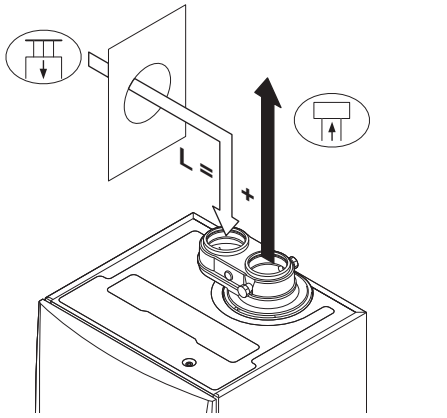
Flue gas outlet connection
Air supply connection

With a closed version, both the flue gas outlet and the air supply openings are connected (concentrically).

Tab.12 Maximum chimney length (L)

Quinta Pro	Diameter	
	80–125 mm	100–150 mm
30	20 m	20 m
45	16 m	20 m
65	-	13 m
90	-	13 m
115	-	7 m

Fig.15 Different pressure areas



Connection in different pressure areas (C53, C83)

Flue gas outlet connection
Air supply connection

A 100/100 mm flue gas adapter (accessory) must be fitted for this connection.

Combustion air supply and flue gas discharge are possible in different pressure areas and semi-CLV systems, with the exception of the coastal area. The maximum permitted height difference between the combustion air supply and the flue gas outlet is 36 m.

Tab.13 Maximum chimney length (L) in the various pressure zones

Quinta Pro	Diameter				
	80 mm	90 mm	100 mm	110 mm	130 mm
30	20 m	36 m	36 m	36 m	36 m
45	20 m	36 m	36 m	36 m	36 m
65	-	2 m	8 m	34 m	36 m
90	-	-	4 m	32 m	36 m
115	-	-	-	24 m	36 m

Reduction table

Tab.14 Pipe reduction for each element used (parallel)

Diameter	Pipe reduction	
	45° bend	90° bend
60 mm	0.9 m	3.1 m
70 mm	1.1 m	3.5 m
80 mm	1.2 m	4.0 m
90 mm	1.3 m	4.5 m
100 mm	1.4 m	4.9 m
110 mm	1.5 m	5.4 m
130 mm	1.6 m	6.2 m

Tab.15 Pipe reduction for each element used (concentric)

Diameter	Pipe reduction	
	45° bend	90° bend
60–100 mm	1 m	2 m
80–125 mm	1 m	2 m
100–150 mm	1 m	2 m

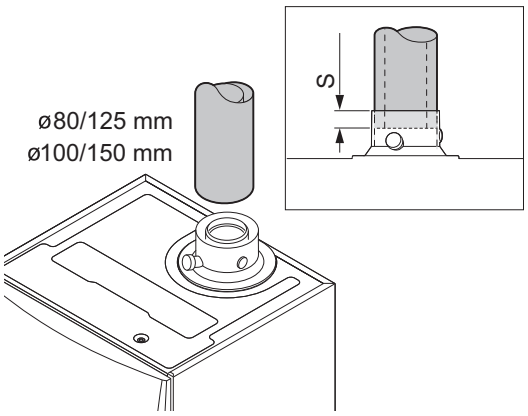
6.5.4 Additional guidelines

- For installing the flue gas outlet and air supply materials, refer to the instructions of the manufacturer of the relevant material. If the flue gas outlet and air supply materials are not installed in accordance with the instructions (e.g. not leakproof, not bracketed), this can result in dangerous situations and/or physical injury. After installation, check at least all flue gas outlet and air supply parts for tightness.
- Direct connection of the flue gas outlet to structural ducts is not permitted because of condensation.
- Always clean shafts thoroughly when using lining pipes and/or an air supply connection.
- It must be possible to inspect the lining duct.
- If condensate from a plastic or stainless steel pipe section can flow back to an aluminium part in the flue gas outlet, this condensate must be discharged via a collector before it reaches the aluminium.
- With longer lengths of aluminium flue gas outlet pipes, relatively large quantities of corrosion products flowing back out of the outlet pipes together with the condensate must be taken into account the first time. Clean the siphon of the appliance regularly or install an extra condensate collector above the unit.
- Make sure that the flue gas outlet pipe towards the boiler has a sufficient gradient (at least 50 mm per metre) and that there is a sufficient condensate collector and discharge (at least 1 m before the outlet of the boiler). The bends used must be larger than 90° to guarantee the gradient and a good seal on the lip rings.

Note
Contact us for more information.

6.5.5 Flue gas outlet and air supply connection

Fig.16 Connecting the flue gas outlet and air supply



S Insertion depth 25 mm

Assembly

1. Fit the flue gas outlet pipe and the air supply pipe to the boiler.
2. Fit the successive flue gas outlet pipes and air supply pipes seamlessly together.

Caution
- The pipes must be flue gas-tight and corrosion-resistant.
- The flue gas outlet pipe must be smooth and deburred.
- Connect the pipes so that they are stress-free.
- The pipes must not rest on the boiler.
- Fit the horizontal parts sloping down towards the boiler, with a gradient of 50 mm per metre.

6.6 Electrical connections

6.6.1 Control unit

The table gives important connection values for the control unit.

Tab.16 Connection values for control unit

Supply voltage	230 VAC/50 Hz
Main fuse value F1 (230 VAC)	6.3 AT
Fuse value F2 (230 VAC)	2 AT
Fan	230 VAC

Danger of electric shock
The following components of the boiler are connected to a 230 V power supply:
- Electrical connection to circulating pump.
- Electrical connection to gas combination block.
- Electrical connection to fan.
- Control unit.
- Ignition transformer.
- Power supply cable connection.

The boiler has a three-wire mains lead (lead length 1.5 m) and is suitable for a 230 VAC/50 Hz power supply with a phase/neutral/earth system. The boiler is not phase sensitive. The power supply cable is connected to the **X1** connector. A spare fuse can be found in the housing of the control unit.

Caution
- Always order a replacement mains lead from Remeha. The power supply cable should only be replaced by Remeha, or by an installer certified by Remeha.
- The boiler switch must be easily accessible at all times.

The boiler has several control, protection and regulation connection options. The standard PCB can be extended with optional PCBs.

For more information, see
Optional electrical connections, page 79

6.6.2 Recommendations

Warning
- Electrical connections must always be made with the power supply disconnected and only by qualified installers.
- The boiler is completely pre-wired. Never change the internal connections of the control panel.
- Make sure you establish an earth connection before connecting the electricity.

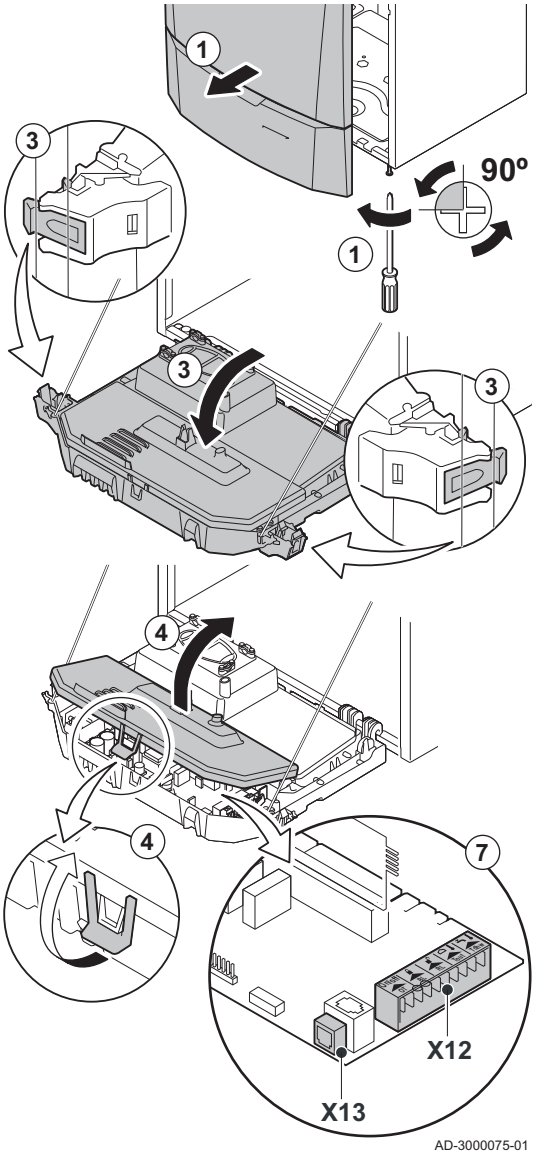
Establish the electrical connections in accordance with:

- The instructions of the current standards.
- The instructions of the wiring diagrams supplied with the boiler.
- The recommendations in this manual.

Caution
Separate the sensor cables from the 230 V cables.

6.6.3 Access to the connectors

Fig.17 Access to the connectors

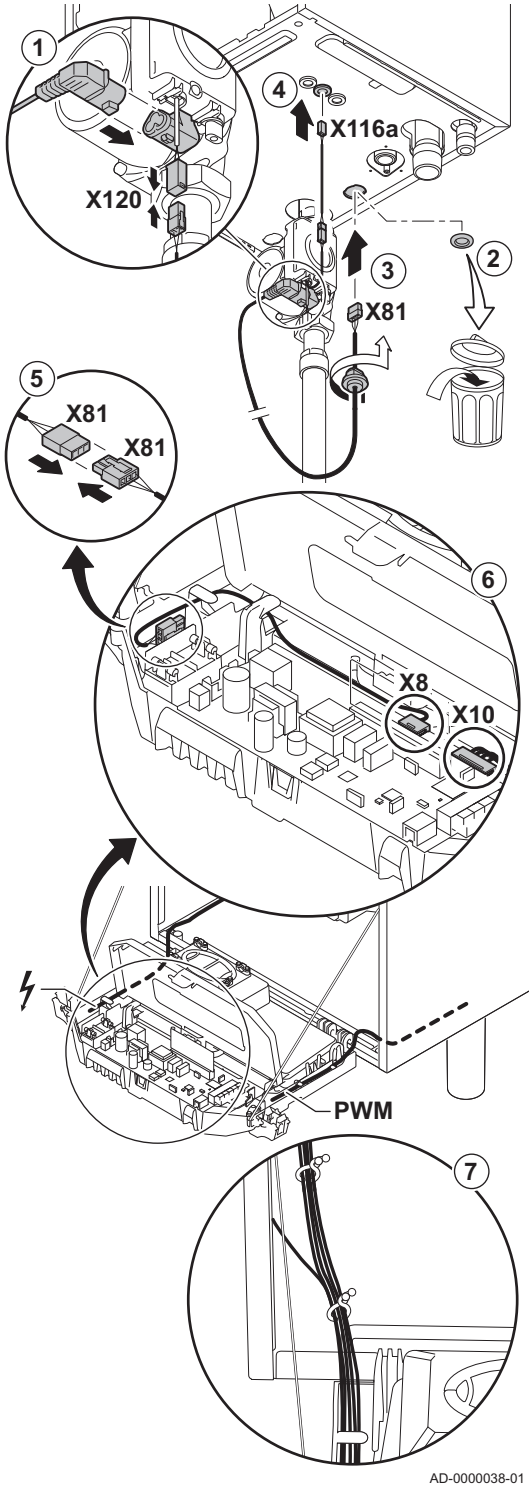


Various thermostats and regulators can be connected to the standard PCB (PCU) (connector **X12**).

Access to the connectors:

1. Unscrew the two screws located under the front housing by a quarter turn and remove the front housing.
2. Guide the cables from the regulator or the thermostat through the round grommet(s) on the right-hand side of the boiler bottom plate.
3. Tilt the instrument box forwards by opening the clips on the sides.
4. Open the instrument box by opening the clip on the front.
5. Guide the relevant connection cable(s) through the instrument box via the grommet(s) provided.
6. Unscrew the strain relief clamps as required (in front of the connector) and guide the cables underneath.
7. Connect the cables to the appropriate terminals on the connector.
8. Screw the strain relief clamps securely into position and close the control panel.

Fig.18 Connecting the power supply cable



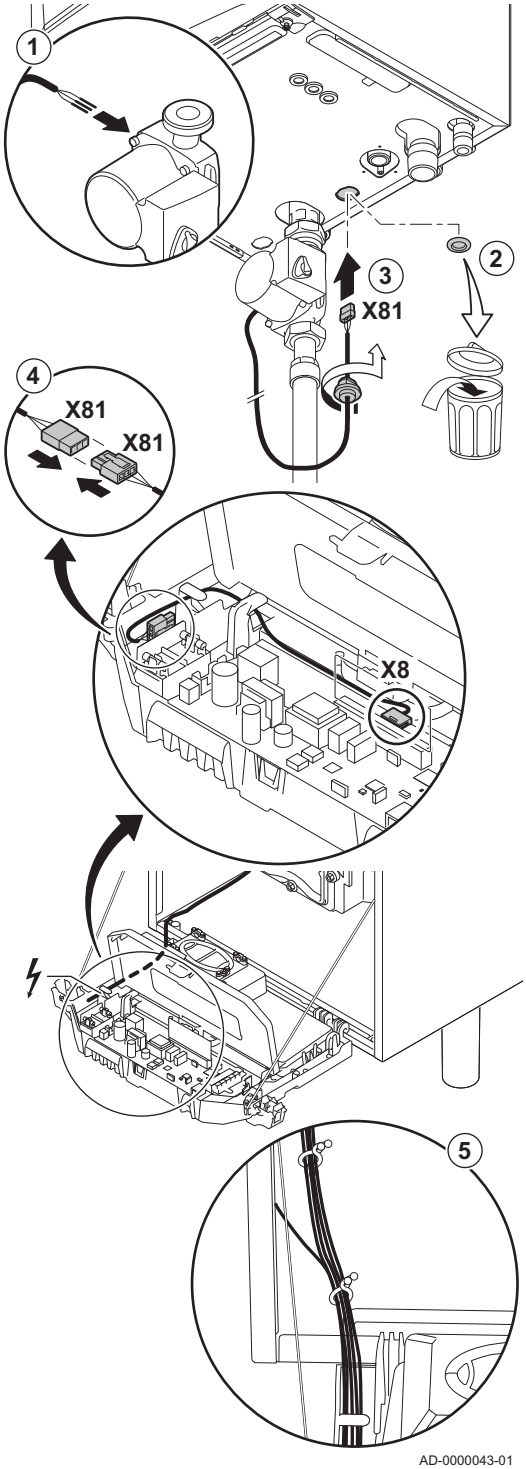
6.6.4 Connection options for the standard PCB

■ Connecting the PWM pump

The energy-efficient modulating pump must be connected to the standard PCB of the PCU. Proceed as follows:

1. Connect the power supply cable and the cable for the PWM signal to the pump.
2. Remove the grommet from the opening in the middle of the base of the boiler.
3. Pass the pump power supply cable through the base of the boiler and seal the opening by tightening the bayonet fitting to the cable.
4. Pass the PWM cable from the pump through one of the grommets on the right in the base of the boiler.
5. Connect the pump power supply cable to the cable in the instrument box that is connected with connector X8.
6. Connect the pump PWM cable to the cable in the instrument box that is connected with connector X10.
7. Add the pump cables to the cable bundles by opening and closing the cable bundle bands.

Fig.19 Connecting the power supply cable

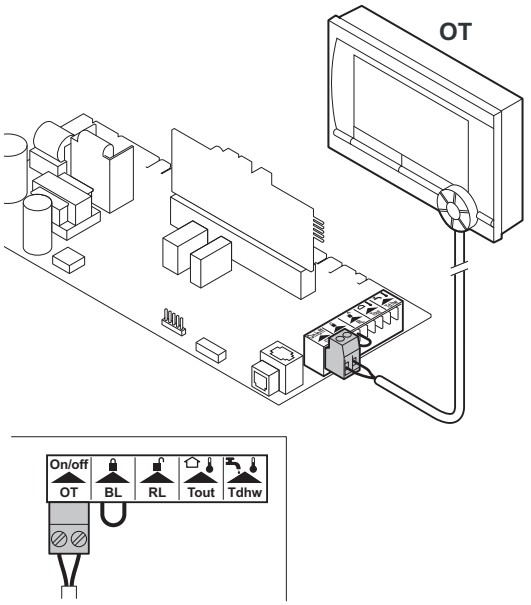


Connecting the pump

The pump must be connected to the standard PCB of the PCU. Proceed as follows:

1. Connect the cable supplied with the boiler to the pump.
2. Remove the grommet from the opening in the middle of the base of the boiler.
3. Pass the pump cable through the base of the boiler and seal the opening by tightening the bayonet fitting to the cable.
4. Connect the pump cable to the cable in the instrument box that is connected with connector X8.
5. Add the pump cable to the cable bundles by opening and closing the cable bundle bands.

Fig.20 Connecting modulating thermostat



Connecting modulating thermostat

OT OpenTherm thermostat

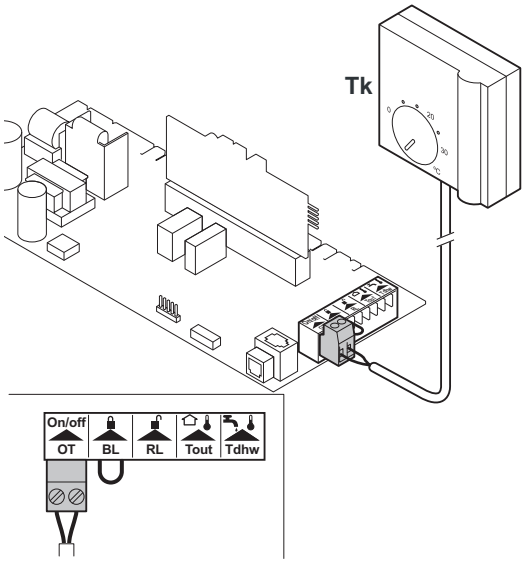
The boiler is fitted with an **OpenTherm** connection as standard. As a result, modulating **OpenTherm** thermostats (room-temperature, weather-compensated and cascade thermostats) can be connected without further modifications. The boiler is also suitable for **OpenTherm Smart Power**.

1. In the case of a room thermostat: install the thermostat in a reference room.
2. Connect the two-wire cable of the thermostat to the **On/Off OT** terminals of the connector. It does not matter which wire is connected to which cable clamp.

Note
If the tap water temperature can be set on the **OpenTherm** thermostat, the boiler will supply this temperature, with the value set in the boiler as a maximum.

Connecting the on/off thermostat

Fig.21 Connecting the on/off thermostat



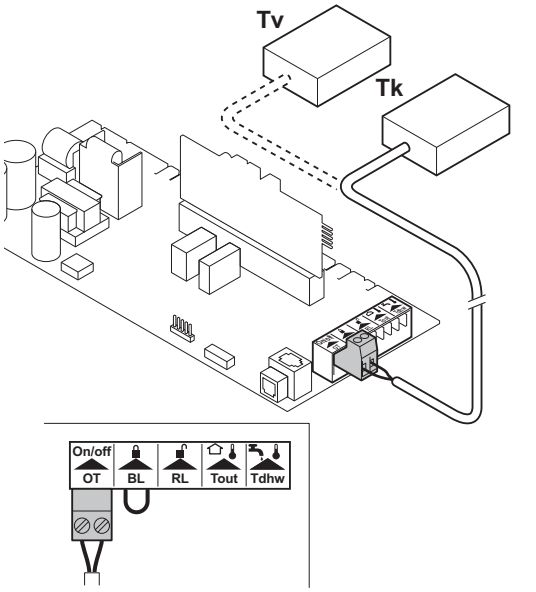
Tk On/off ambient thermostat

The boiler is suitable for connection to a two-wire on/off ambient thermostat.

1. Fit the thermostat in a reference room (generally the living room).
2. Connect the two-wire cable of the thermostat to the **On/off OT** terminals of the connector. It does not matter which wire is connected to which cable clamp.
3. Connect the power-stealing thermostat to the **On/off OT** terminals of the connector.

Note
If an ambient thermostat with an anticipation element is used, this must be completed via parameter PS.

Fig.22 Connecting the frost thermostat



Frost protection combined with on/off thermostat

When an on/off thermostat is used, the pipes and radiators in a frost-sensitive room can be protected by a frost thermostat. The radiator valve in the frost-sensitive room must be open.

1. Place a frost thermostat (**Tv**) in a frost-sensitive room (e.g. a garage).
2. Connect the frost thermostat (**Tv**) parallel to the on/off thermostat (**Tk**) on the **On/Off OT** terminals of the connector.

Note
When an **OpenTherm** thermostat is used, it is not possible to connect a frost thermostat parallel to the **On/Off OT** terminals. In that case, implement frost protection of the central heating system in combination with an outside sensor.

Frost protection combined with outside sensor

The central heating system can also be protected against frost in combination with an outside sensor. The radiator valve in the frost-sensitive room must be open.

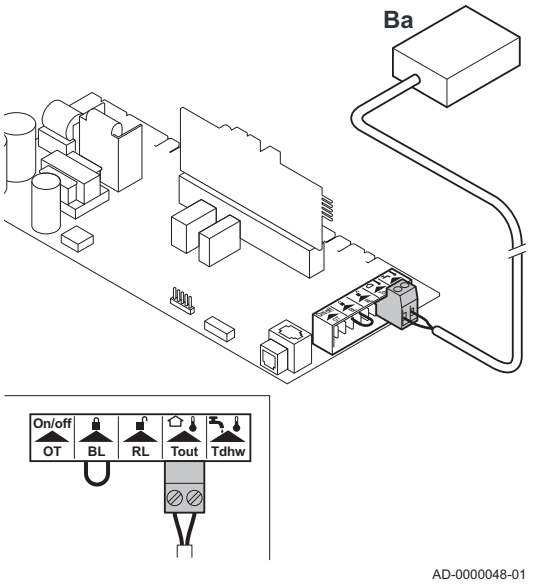
1. Connect the outside sensor to the **Tout** terminals of the connector.

The frost protection works as follows with an outside sensor:

- At an outside temperature lower than -10°C (can be set with parameter P30): the circulating pump switches on.
- At an outside temperature higher than -10°C (can be set with parameter P30): the circulating pump continues to run and then switches off.

Connecting an outside sensor

Fig.23 Connecting an outside sensor



Ba Outside sensor

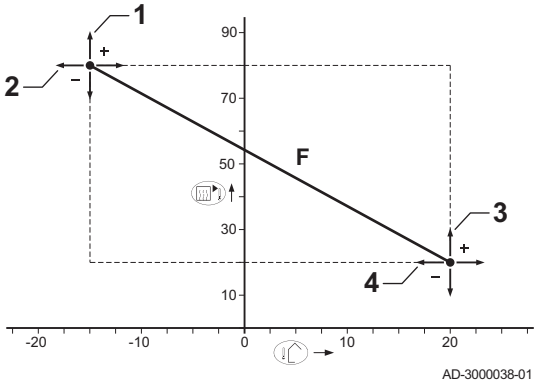
An outside sensor can be connected to the **Tout** terminals of the connector (accessory). In the event of an on/off thermostat, the boiler will regulate the temperature using the set point of the internal heating curve (**F**). Various parameter settings can be used to change the internal heating curve.

1. Connect the two-wire cable to the **Tout** terminals of the connector.

Note
An **OpenTherm** controller can also use this outside sensor. In that case, the required internal heating curve must be set on the controller.

– Setting the heating curve

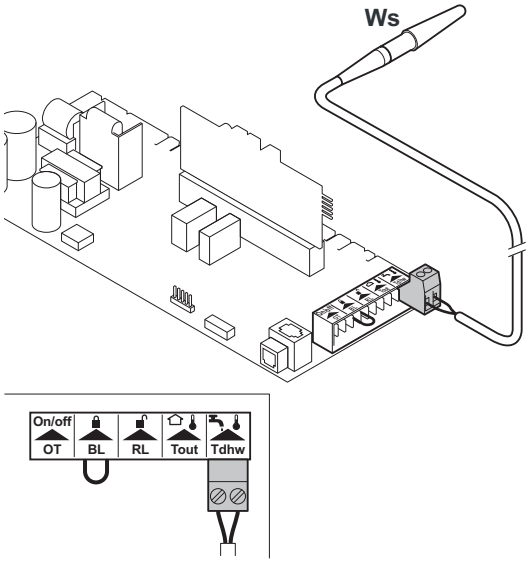
Fig.24 Heating curve



1 P1
2 P27
3 P25
4 P26
F Heating curve

If an outside temperature sensor is connected, it is possible to adapt the internal heating curve. The setting can be modified using parameters P1, P25, P26 and P27.

Fig.25 Connecting the calorifier sensor/calorifier thermostat



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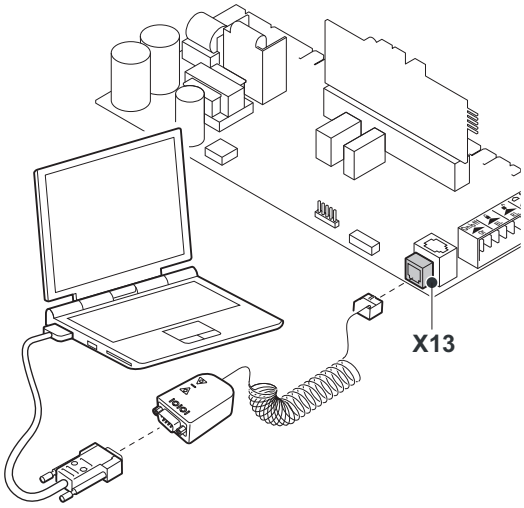
Connecting the calorifier sensor/calorifier thermostat

Ws Calorifier sensor

1. Connect the calorifier sensor or calorifier thermostat to the **Tdhw** terminals of the connector.

Connecting a PC/laptop

Fig.26 Connecting a PC/laptop

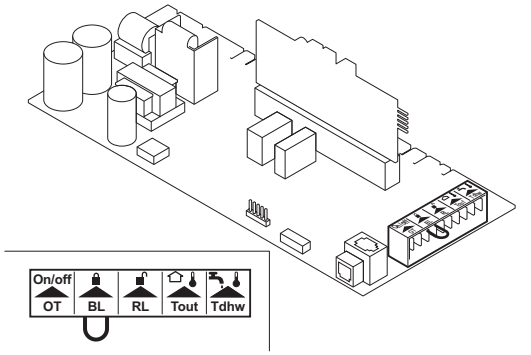


AD-0000051-01

A PC or laptop can be connected to the telephone connector using the optional **Recom** interface Using the **Recom** PC/Laptop service software, you can enter, change and read out various boiler settings.

Blocking input

Fig.27 Blocking input



AD-0000052-01

The boiler has a blocking input. This input relates to the **BL** terminals of the connector.

Warning
Only suitable for potential-free contacts.

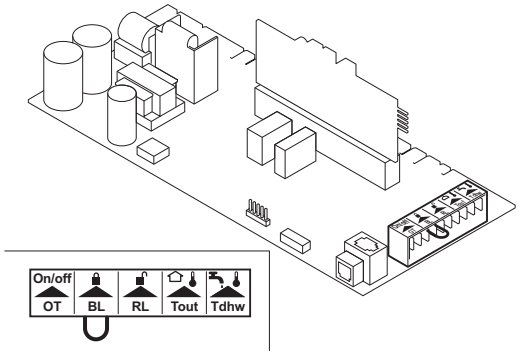
Note
First remove the bridge if this input is used.

The parameter P36 can be used to change the function of the input.

For more information, see
Changing the parameters, page 48

■ Release input

Fig.28 Release input



AD-0000053-01

The boiler has a release input. This input relates to the **RL** terminals of the connector.

Warning
Only suitable for potential-free contacts.

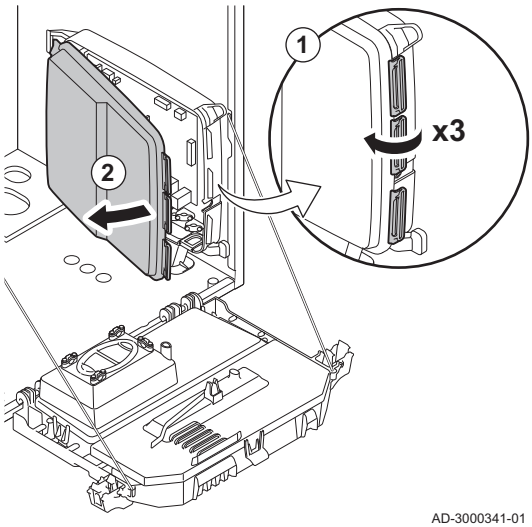
The parameter P37 can be used to change the function of the input.

The parameter P38 can be used to change the wait time of the input.

For more information, see
Changing the parameters, page 48

6.6.5 PCBs

Fig.29 Open housing for PCBs



AD-3000341-01

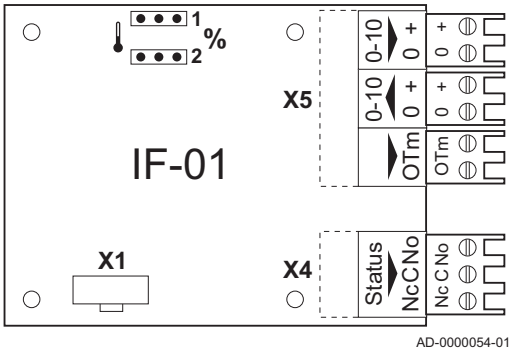
The PCBs are positioned in the PCB housing.

The following PCBs are already installed in the PCB housing:

- IF-01
- SCU-S02
- SCU-X01

■ Connection options for the 0–10 V PCB (IF-01)

Fig.30 IF-01 PCB



AD-0000054-01

The IF-01 PCB can be built into the instrument box or the housing for the PCBs. See the instructions provided with the product.

Caution
Do not connect a frost thermostat or room thermostat to the boiler if using the 0–10 V PCB.

– Connecting the status relay (Nc)

If the boiler locks out, a relay is de-energised and the alarm can be transmitted via a potential-free contact (maximum 230 V, 1 A) on terminals **Nc** and **C** of the connector.

– Connection (OTm)

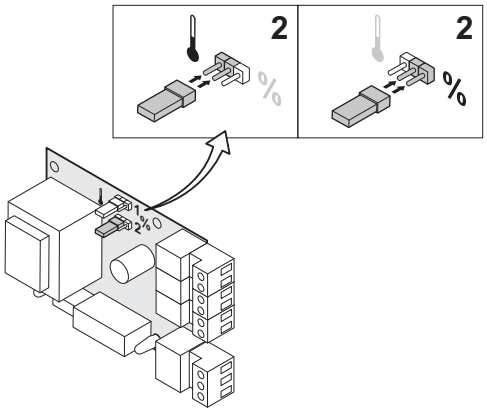
The interface uses **OpenTherm** to communicate with the boiler control unit. To make this possible, the **OTm** connection must be connected to the **OpenTherm** input of the boiler control unit.**OTm**

– Analogue input

A choice can be made with this control between control based on temperature or heat output. The two controls are described briefly below.

1. Connect the input signal to terminals **0–10** of the connector.

Fig.31 Switch jumper (2)



AD-0000055-01

Tab.17 Temperature-based control (°C)

Jumper 2	Input signal (V)	Temperature °C	Description
🌡	0–1.5	0–15	Boiler off
	1.5–1.8	15–18	Hysteresis
	1.8–10	18–100	Desired temperature

The 0–10 V signal controls the boiler supply temperature. This control modulates on the basis of flow temperature. The output varies between the minimum and maximum value on the basis of the flow temperature set point calculated by the controller.

A jumper (**2**) on the interface is used to select either temperature-based control (🌡) or output-based control (**%**).

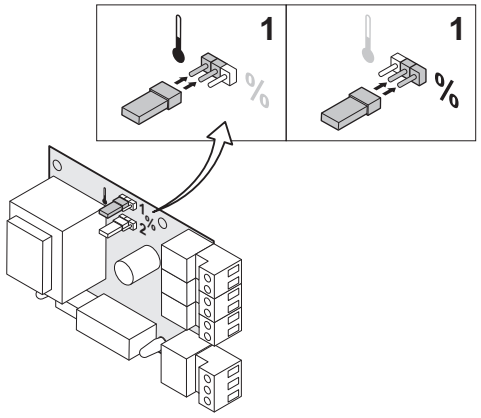
Tab.18 Control based on heat output

Jumper 2	Input signal (V)	Heat output (%)	Description
%	0–2.0(1)	0–20	Boiler off
	2.0–2.2 (1)	20–22	Hysteresis
	2.0–10 (1)	20–100	Desired temperature
(1) Dependent on the minimum modulation depth (set speeds, standard 20%)			

The 0–10 V signal controls the boiler output. This control modulates on the basis of the heat output. The minimum output is linked to the boiler's modulation depth. The output varies between the minimum and maximum value on the basis of the value defined by the controller.

– Analogue output (0–10 V)

Fig.32 Switch jumper (1)



AD-0000056-01

This feedback can be based on temperature or heat output. The two controls are described briefly below.

A jumper (**1**) on the interface is used to select either temperature (🌡) or output (**%**).

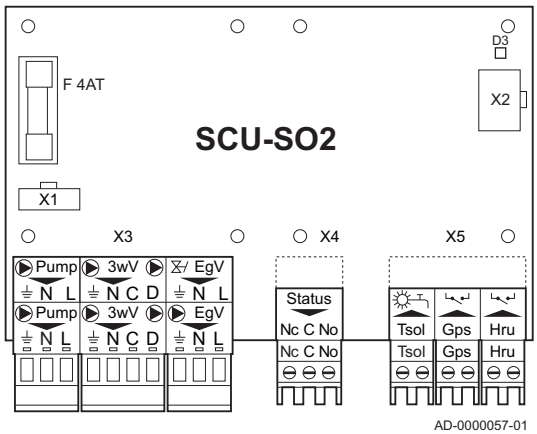
Tab.19 Temperature message

Jumper 1	Output signal (V)	Temperature °C	Description
🌡	0.5	–	Alarm
	1–10	10–100	Supplied temperature

Tab.20 Output message

Jumper 2	Output signal (V)	Heat output (%)	Description
%	0	0–15	Boiler off
	0.5	15–20	Alarm
	2.0–10(1)	20–100	Supplied heat output
(1) Dependent on the minimum modulation depth (set speeds, standard 20%)			

Fig.33 SCU-S02 PCB



■ Connection options for the PCB (SCU-S02)

If the boiler is fitted with the PCB (SCU-S02), then this PCB is automatically recognised by the boiler's automatic control unit.

Note
On removing this PCB, the boiler will show error code E·38. To prevent this error, an auto-detect must be carried out after removing this PCB.

For information on carrying out an auto-detect, see: Carrying out an auto-detect, page 51

The status indicator D3 at the top right of the PCB indicates the status:

- Continuous signal: PCB working normally
- Flashing signal: no connection
- No signal: no power or faulty PCB (check the wiring)

– Control of external CH pump (pump)

An external central heating pump can be connected to the **pump** terminals of the connector. The maximum power consumption is 400 VA.

– Control of external three-way valve (3wV)

The external three-way valve (230 VAC) can be used when connecting an indirectly heated calorifier. The neutral position of the three-way valve can be set using parameter P34.

The three-way valve is connected as follows:

- N = neutral
- C = central heating
- D = calorifier

– Connecting external DHW pump (3wV)

It is also possible to connect an external DHW pump to the terminals **3wV**.

Connect the pump as follows:

- N = N pump
- D = L pump
- ⏚ = PE pump

Caution
If the neutral position of the three-way valve is adjusted with parameter P34, the pump must be connected as follows:
- N = N pump
- C = L pomp
- ⏚ = PE pump

– Control of external gas valve (EgV)

If there is a heat demand, an alternating voltage of 230 VAC, 1 A (maximum) becomes available on the **EgV** terminals of the connector to control an external gas valve.

– Connecting the minimum gas pressure switch (Gps)

The minimum gas pressure switch blocks the boiler if the gas inlet pressure becomes too low.

1. Connect the minimum gas pressure switch to the **Gps** terminals of the connector.

The presence of the gas pressure switch must be set using parameter P41.

– Connecting a heat recovery unit (Hru)

1. Connect the wires from the heat recovery unit to the **Hru** terminals of the connector.

The presence of the heat recovery unit must be set using parameter P42.

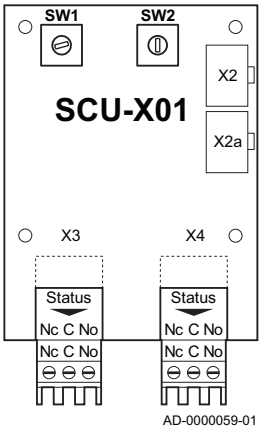
– Operation signal and error signal (status)

You can choose between an alarm or operation signal using parameter P 4 0.

- If the boiler is operating, the operation signal can be switched via a potential-free contact (maximum 230 VAC, 1 A) on the **No** and **C** terminals of the connector.
- If the boiler is locked out, the alarm signal can be transmitted via a potential-free contact (maximum 230 VAC, 1 A) on the **Nc** and **C** terminals of the connector.

■ Connection options for the PCB (SCU-X01)

Fig.34 SCU-X01 PCB



The SCU-X01 PCB has two potential-free contacts (**status**), which can be configured as required. Depending on the setting, a maximum of two messages about the status of the boiler can be transmitted. See table. Select the messages required using rotary knobs **SW1** and **SW2**. Use rotary knob **SW1** for messages on the status connector **X3**. Use rotary knob **SW2** for messages on the status connector **X4**.

Tab.21 Configuring the rotary knobs

Position	C-NO	C-NC
0	Alarm standby	Alarm active
1	Alarm inverted active	Alarm inverted standby
2	Burning standby	Burning active
3	Burning inverted active	Burning inverted standby
4	Burning low standby	Burning low active
5	Burning high standby	Burning high active
6	Maintenance message standby	Maintenance message active
7	CH mode standby	CH mode active
8	DHW mode standby	DHW mode active
9	CH pump standby	CH pump active

6.7 Filling the system

6.7.1 Water treatment

In many cases, the boiler and central heating system can be filled with normal tap water and water treatment will not be necessary.

Warning
Do not add chemical agents to the central heating water without consulting Remeha. For example: antifreeze, water softeners, pH-increasing or lowering agents, chemical additives and/or inhibitors. Such agents can cause errors in the boiler and damage to the heat exchanger.

Note
- For untreated water, the pH value of the water in the installation must be between 7 and 9 and for treated water between 7 and 8.5.
- The maximum hardness of the water in the installation must be between 0.5 and 20.0 °dH (dependent on the total heat output generated).
- More information is available in our **Water quality regulations**. Always adhere to the instructions in the aforementioned document.

6.7.2 Filling the siphon

Danger
The siphon must always be sufficiently filled with water. This prevents flue gases from entering the room.

Fig.35 Filling the siphon

AD-0000064-01

1. Remove the siphon.
2. Fill the siphon up with water.
3. Fit the siphon.
4. Check whether the siphon is firmly fitted in the boiler.

6.7.3 Filling the system

Caution
Before filling, open the valves on every radiator in the installation.

Note
In order to be able to read off the water pressure from the boiler display, the boiler must be switched on.

1. Fill the central heating system with clean tap water.

Note
The recommended water pressure is between 1.5 and 2 bar.

2. Check the water-side connections for tightness.

Note
After switching on the power and if there is adequate water pressure, the boiler always runs through an automatic venting program lasting approximately 3 minutes (air may escape via the automatic air vent during filling). If the water pressure is lower than 0.8 bar, the symbol will appear. If the water pressure is too low, top up the CH installation.

Caution
- Carry out the filling within 30 minutes to avoid the venting program starting up. That would indeed be undesirable if the boiler is not filled. Switch the boiler off if the CH installation is not being topped up immediately.
- When venting, prevent water from getting into the boiler casing and electrical parts of the boiler.

7 Commissioning

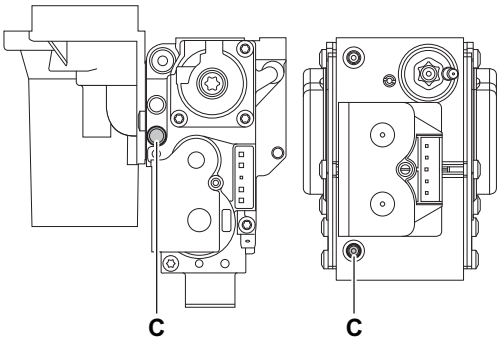
7.1 General

Follow the steps set out in the paragraphs below to put the boiler into operation.

Warning
Do not put the boiler into operation if the supplied gas is not in accordance with the approved gas types.

7.2 Gas circuit

Fig.36 Gas valve unit measuring points



Warning
Ensure that the boiler is disconnected from the power supply.

1. Open the main gas tap.
2. Open the boiler gas tap.
3. Unscrew the two screws located under the front housing by a quarter turn and remove the front housing.
4. Tilt the instrument box forwards by opening the clips on the sides.
5. Check the gas inlet pressure at the measuring point **C** on the gas valve unit.

Warning
- The gas pressure measured on measurement point **C** is the gas inlet pressure at the boiler connection point reduced by the resistance of the internal gas pipe. See Technical data, page 11
- For authorised gas pressures, see: Unit categories, page 11

6. Vent the gas supply pipe by unscrewing the measuring point on the gas valve unit.
7. Tighten the measuring point again when the pipe has been fully vented.
8. Check all connections for gas tightness. The test pressure may be a maximum of 60 mbar.

7.3 Hydraulic circuit

1. Check the siphon; it should be fully filled with clean water.
2. Check the water-side connections for tightness.

7.4 Electrical connections

1. Check the electrical connections.

7.5 Commissioning procedure

Warning
- Initial commissioning must be done by a qualified professional.
- If adapting to another gas type i.e. propane, the gas valve unit must be adjusted before switching on the boiler.

See
Adaptation to a different gas type, page 41

Note
On first firing the boiler, a smell may be present for a short period.

1. Tilt the instrument box upwards again and fasten it using the clips located on the sides.
2. Open the main gas tap.
3. Open the boiler gas tap.

4. Insert the boiler plug into an earthed socket.
5. Switch the power on with the boiler's on/off switch.
6. Set the components (thermostats, control) so that heat is demanded.
7. The start-up program will start and cannot be interrupted. During the start-up cycle, the display shows the following information: A short test where all segments of the display are visible:
   - F_ : XX : Software version
   - P_ : XX : Parameter version
   The version numbers are displayed alternately.
8. A three-minute venting cycle is performed automatically.

Note
If a calorifier sensor is connected and the legionella protection function is activated, the boiler starts to heat the water in the DHW tank as soon as the venting programme has been completed.

By pressing the ⟵ key for a short time, the current operating status is shown on the display:

Tab.22 Operating status

Heat demand	Heat demand stopped
1 : Fan on	1 : Post-ventilation
2 : Burner ignition	5 : Burner stop
	6 : Post-circulation of the pump
3 : CH operation	0 : Standby

In addition to 0, in STAND-BY the display normally shows the water pressure and the symbols and .

Error during start-up procedure:

- No information is shown on the display:
  - Check the mains supply voltage
  - Check the main fuses
  - Check the fuses on the control unit: (F1 = 6.3 AT, F2 = 2 AT)
  - Check the connection of the mains lead to the connector **X1** in the instrument box
- An error is indicated on the display by the error symbol and a flashing error code.
  - The meaning of the error codes can be found in the error table.
  - Press the **RESET** key for 3 seconds to restart the boiler.

Note
If the ECO setting is on, then the boiler will not ignite for hot tap water production after central heating operation.

7.6 Gas settings

7.6.1 Adaptation to a different gas type

Warning
Only a qualified engineer may carry out the following operations.

Before operating with a different type of gas, carry out the following steps.

1. Set the fan speed as indicated in the table (if necessary). The setting can be modified using parameters P17, P18, P19 and P20.

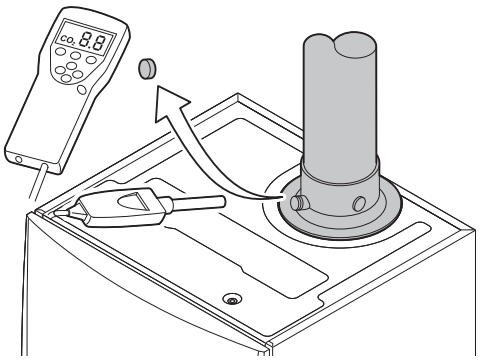
See
Changing the parameters at installer level, page 49

2. Check the setting of the gas/air ratio.

See
Checking and setting the gas/air ratio, page 42

7.6.2 Checking and setting the gas/air ratio

Fig.37 Flue gas measuring point



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1. Unscrew the cap from the flue gas measuring point.
2. Insert the probe for the flue gas analyser into the measurement opening.

Warning
During measurement, seal the opening around the sensor fully.

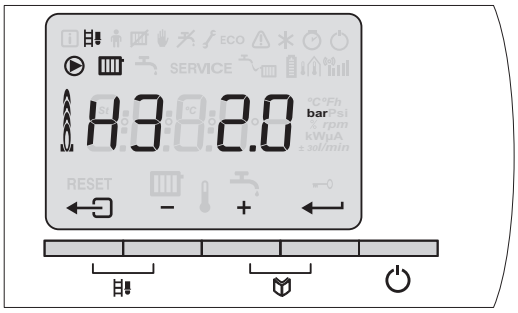
Note
- The flue gas analyser must have a minimum accuracy of ±0.25% O_2/CO_2.
- The flue gas analyser must meet the requirements of BS 7927 or BS-EN 503793 and be calibrated according to the manufacturer's requirements.

3. Measure the percentage of O_2/CO_2 in the flue gases. Take measurements at full load and at low load.

Note
Measurements must be taken with the front housing off.

■ Checking/setting values for O_2/CO_2 at full load

Fig.38 Setting to full load



AD-0000070-01

1. Set the boiler to full load. Press the two keys at the same time. The display shows H3. The symbol appears.
2. Measure the percentage of O_2/CO_2 in the flue gases.
3. Compare the measured value with the checking values in the table.

Tab.23 Checking/setting values O_2/CO_2 at full load for G20 (H gas)

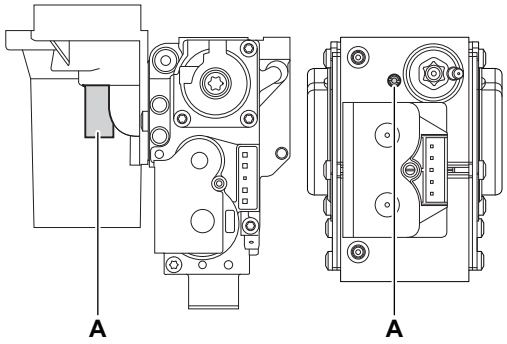
Values at full load for G20 (H gas)	O_2 (%)	CO_2 (%)
Quinta Pro 30	4.3 – 4.8(1)	9.0(1) – 9.3
Quinta Pro 45	4.3 – 4.8(1)	9.0(1) – 9.3
Quinta Pro 65	4.3 – 4.8(1)	9.0(1) – 9.3
Quinta Pro 90	3.4 – 3.9(1)	9.5(1) – 9.8
Quinta Pro 115	4.2 – 4.7(1)	9.1(1) – 9.4
(1) Nominal value		

Tab.24 Checking/setting values O_2/CO_2 at full load for G31 (propane)

Values at full load for G31 (propane)	O_2 (%)	CO_2 (%)
Quinta Pro 30	4.1 – 4.6(2)	10.7(2) – 11.0
Quinta Pro 45	4.1 – 4.6(1)	10.7(2) – 11.0
Quinta Pro 65	4.1 – 4.6(2)	10.7(2) – 11.0
Quinta Pro 90	4.1 – 4.6(2)	10.7(2) – 11.0
Quinta Pro 115	4.4 – 4.9(2)	10.5(2) – 10.8
(1) Nominal value		

Caution
- The O_2 values at full load must be lower than the O_2 values at low load.
- The CO_2 values at full load must be higher than the CO_2 values at low load.

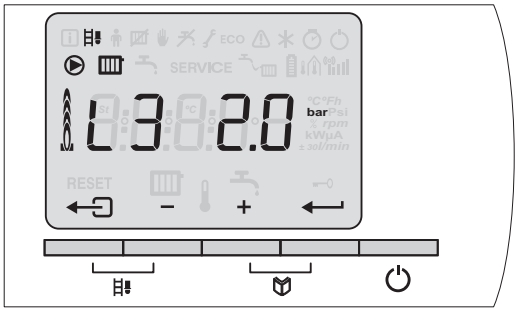
Fig.39 Position of adjusting screw A



4. If the measured value is outside of the values given in the table, correct the gas/air ratio.
5. Using adjusting screw **A**, adjust the percentage of O_2/CO_2 for the gas type being used to the nominal value. This should always be inside the highest and lowest setting limit.
6. The O_2/CO_2 value set at full load has a corresponding set value at low load (see table). Make a note of the full load value set and use this for setting at low load.

■ Checking/setting values for O_2/CO_2 at low load

Fig.40 Setting to low load



1. Set the boiler to low load. Press the − key several times until L3 appears on the display.
2. Measure the percentage of O_2/CO_2 in the flue gases.
3. Compare the measured value with the checking values in the table.

Tab.25 Checking/setting values O_2/CO_2 at low load for G20 (H gas)

Values at low load for G20 (H gas)	O_2 (%)	CO_2 (%)
Quinta Pro 30	5.7(1) – 6.2	8.2 – 8.5(1)
Quinta Pro 45	5.7(1) – 6.2	8.2 – 8.5(1)
Quinta Pro 65	4.8(1) – 5.3	8.7 – 9.0(1)
Quinta Pro 90	4.8(1) – 5.3	8.7 – 9.0(1)
Quinta Pro 115	5.6(1) – 6.1	8.3 – 8.6(1)
(1) Nominal value		

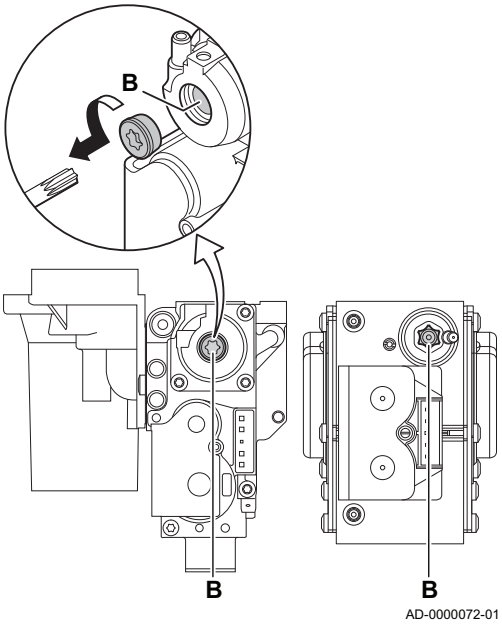
Tab.26 Checking/setting values O_2/CO_2 at low load for G31 (propane)

Values at low load for G31 (propane)	O_2 (%)	CO_2 (%)
Quinta Pro 30	5.4(2) – 5.9	9.9 – 10.2(2)
Quinta Pro 45	5.4(1) – 5.9	9.9 – 10.2(2)
Quinta Pro 65	5.4(2) – 5.9	10.1 – 10.4(2)
Quinta Pro 90	5.4(2) – 5.9	9.9 – 10.2(2)
Quinta Pro 115	5.7(2) – 6.2	9.7 – 10.0(2)
(1) Nominal value		

Caution
- The O_2 values at low load must be higher than the O_2 values at full load.
- The CO_2 values at low load must be lower than the CO_2 values at full load.

4. If the measured value is outside of the values given in the table, correct the gas/air ratio.

Fig.41 Position of adjusting screw B



5. Using adjusting screw **B**, adjust the percentage of O_2/CO_2 for the gas type being used to the nominal value. This should always be inside the highest and lowest setting limit.
6. Set the boiler back to the normal operating status.

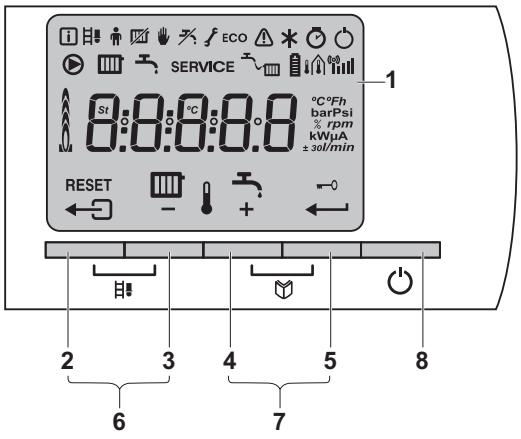
7.7 Final instructions

1. Remove the measuring equipment.
2. Screw the cap on to the flue gas measuring point.
3. Put the front casing back. Tighten the two screws by a quarter of a turn.
4. Press the ↩ key to return the boiler to normal operating mode.
5. Heat the CH system up to approximately 70°C.
6. Switch the boiler off.
7. Vent the central heating system after approx. 10 minutes.
8. Turn on the boiler.
9. Check the water pressure. If necessary: top up the central heating system.
10. Specify the gas type used on the type plate.
11. Instruct the user in the operation of the system, boiler and controller.
12. Inform the user of the maintenance to be performed.
13. Hand over all manuals to the user.

8 Operation

8.1 Use of the control panel

Fig.42 Control panel



1 Display
2 ← Escape or **RESET** key
3 CH temperature or − key
4 DHW temperature or + key
5 ↵ Enter or Cancel key lockout
6 Chimney-sweeping keys

Press the **2** and **3** keys simultaneously.

7 Menu keys

Press the **4** and **5** keys simultaneously.

8 On/off switch

The display has several positions and symbols and provides information about the operating status of the boiler and any faults. A maintenance message may also appear on the display. Numbers, dots and/or letters may be shown. The symbols above the function keys indicate the current function.

- The display content can be changed using parameter P6.
- The brightness of the display lighting can be changed using parameter P8.

Key lockout is activated by setting parameter P6 to 3. If no key is pressed for 3 minutes, the display lighting switches off and only the current water pressure, the ← key and the symbol are displayed. Press the ↵ key for approximately 2 seconds to reactivate the display and the other keys. The symbol disappears from the display.

8.2 Shutdown

If the central heating is not due to be used for a long period of time, it is recommended that the boiler be disconnected from the power supply.

1. Switch off the boiler's electrical connection.
2. Shut off the gas supply.
3. Keep the area frost-free.

8.3 Frost protection

Caution

- Tap the boiler and central heating system if you are not going to use your home or the building for a long time and there is a chance of frost.
- The frost protection does not work if the boiler is out of operation.
- The built-in boiler protection is only activated for the boiler and not for the system and radiators.
- Open the valves of all the radiators connected to the system.

Set the temperature control low, for example to 10°C.

If there is no heat demand, the boiler will only switch on to protect itself against frost.

If the temperature of the central heating water in the boiler drops too low, the built-in boiler protection system is activated. This system works as follows:

- At a water temperature lower than 7°C, the heating pump starts.
- If the water temperature is lower than 4°C, the boiler switches on.
- If the water temperature is higher than 10°C the boiler switches off and the circulation pump continues to run for a short time.

To prevent the system and radiators freezing in frost-sensitive areas (e.g. a garage), a frost thermostat or outside sensor can be connected to the boiler.

9 Settings

9.1 Parameter descriptions

Tab.27 Factory setting

Parameter	Description	Adjustment range	30	45	65	90	115
P1	Flow temperature: T_{SET}	20 to 90ºC	80	80	80	80	80
P2	DHW temperature: T_{SET}	40 to 65ºC	55	55	55	55	55
P3	Boiler control/DHW	0 = CH off/DHW off 1 = CH on/DHW on 2 = CH on/DHW off 3 = CH off/DHW on	1	1	1	1	1
P4	ECO setting	0 = Comfort 1 = ECO setting 2 = Controller dependent	2	2	2	2	2
P5	Anticipation resistance	0 = No anticipation resistance for the ON/OFF thermostat 1 = Anticipation resistance for the ON/OFF thermostat	0	0	0	0	0
P6	Display screen	0 = Simple 1 = Extended 2 = Automatic switching to simple after three minutes 3 = Automatic switching to simple after three minutes; key lock is active	2	2	2	2	2
P7	Post-circulation of the pump	1 to 98 minutes 99 minutes = continuous	3	3	3	3	3
P8	Brightness of display lighting	0 = Dimmed 1 = Bright	1	1	1	1	1
P17	Maximum fan speed (central heating)	G20 (H gas) x100 rpm	41	56	58	62	70
P18	Maximum fan speed (DHW)	G20 (H gas) x100 rpm	41	56	58	62	70
P19	Minimum fan speed (CH + DHW)	G20 (H gas) x100 rpm	15	15	16	17	18
P20	Minimum fan speed (offset)		50	50	0	0	0
P21	Start speed		25	25	25	25	25
P22	Minimum water pressure	0–3 bar (x 0.1 bar)	8	8	8	8	8
P23	Maximum flow temperature of system	0 to 90°C	90	90	90	90	90
P24	Reserve		-	-	-	-	-
P25	Heat curve set point (Maximum outside temperature)	0 to 30ºC(1)	20	20	20	20	20
P26	Heat curve set point (Flow temperature)	0 to 90ºC(1)	20	20	20	20	20
P27	Heat curve set point (Minimum outside temperature)	-30 to 0ºC(1)	-15	-15	-15	-15	-15
P28	Setting the pump speed (Minimum pump speed for central heating operation)	2–10 (x 10%)	4	4	4	4	4
P29	Setting the pump speed (Maximum pump speed for central heating operation)	2–10 (x 10%)	10	10	10	10	10
P30	Frost protection temperature	-30 to 0ºC	-10	-10	-10	-10	-10

Parameter	Description	Adjustment range	30	45	65	90	115
P31	Legionella protection	0 = Off 1 = On(2) 2 = Controller dependent	1	1	1	1	1
P32	Set point increase for calorifier	0 to 20ºC	20	20	20	20	20
P33	Switch on temperature for DHW calorifier sensor	2 to 15ºC	5	5	5	5	5
P34	Control of three-way valve	0 = Normal 1 = Reverse	0	0	0	0	0
P35	Boiler type	0 = Solo 1 = Open vented 2 = Solo (progressive calorifier control)	0	0	0	0	0
P36	Blocking input function	0 = Heating activated 1 = Blocking frost protection 2 = Blocking with frost protection 3 = Lockout with frost protection(3)	1	1	1	1	1
P37	Release function	0 = DHW on 1 = Release input	1	1	1	1	1
P38	Release waiting time	0 to 255 seconds	0	0	0	0	0
P39	Gas valve switching time	0 to 255 seconds	0	0	0	0	0
P40	Fault relay function	0 = Operation signal 1 = Alarm signal	1	1	1	1	1
P41	GpS connected	0 = Not connected 1 = Connected	0	0	0	0	0
P42	HRU connected	0 = Not connected 1 = Connected	0	0	0	0	0
P43	Mains detection phase	0 = Off 1 = On	0	0	0	0	0
P44	Service message	Do not change	1	1	1	1	1
P45	Service operating hours	Do not change	175	175	175	175	175
P46	Service burning hours	Do not change	30	30	30	30	30
P47	Modulating startpoint	1 to 30°C	25	25	25	25	20(4)
P48	DHW stabilisation time	10 to 100 seconds	100	100	100	100	100
Ad	Detection of connected SCUs	0 = No detection 1 = Detection	0	0	0	0	0
dF + dU	Factory setting	To restore the factory settings or when replacing the control unit, enter the values dF and dU from the type plate for parameters dF and dU.	X Y	X Y	X Y	X Y	X Y

(1) Only with outside sensor
(2) After switching on, the boiler operates once a week at 65°C for the DHW
(3) Pump only
(4) If the boiler is being installed in a cascade system, set parameter P47 to 25

Tab.28 Adjustment for gas type G31 (propane)

Parameter	Description	30	45	65	90	115
P17	Maximum fan speed (central heating)	38	51	54	60	67
P18	Maximum fan speed (DHW)	38	51	54	60	67
P19	Minimum fan speed (CH + DHW)	15	15	16	20	18

Parameter	Description	30	45	65	90	115
P20	Minimum fan speed (offset)	50	50	0	0	0
P21	Start speed	30	30	25	25	35

Tab.29 Adjustment for flue gas overpressure cascade

Parameter	Description	30	45	65	90	115
P19	Minimum fan speed (CH + DHW)	18	18	18	19(1)	19
P20	Minimum fan speed (offset)	0	0	0	0	0
P21	Start speed	25	25	25	25	25
(1) Use the parameter setting for the gas type if the boiler has been adjusted for G31 (propane).						

9.2 Changing the parameters

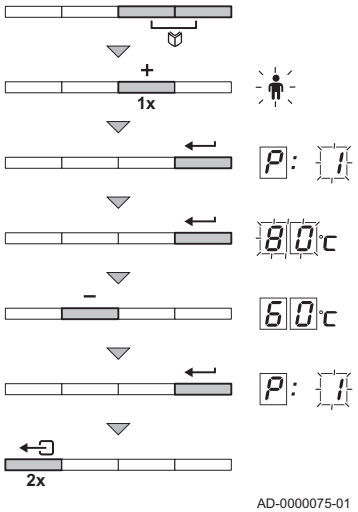
The boiler's control unit is set for the most common central heating systems. These settings will ensure that virtually every central heating system operates effectively. The user or the installer can optimise the parameters as required.

For operation in open-vented systems, several parameter settings must be adjusted. Set the various parameters according to the values given in the table below.

Caution
Modification of the factory settings may impair boiler operation.

9.2.1 Changing the user-level parameters

Fig.43 Changing the user parameters



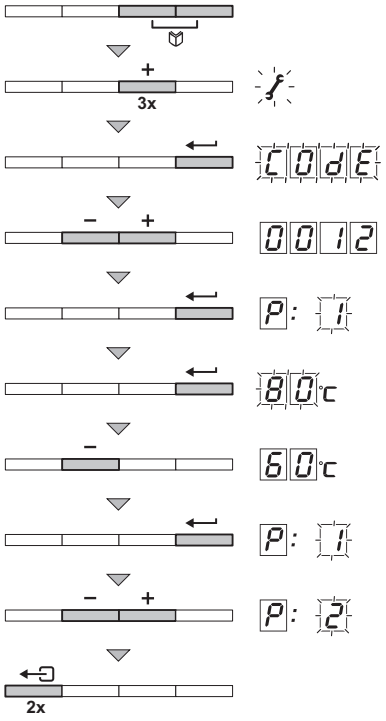
AD-0000075-01

The parameters at user level (see parameter table) can be changed by the user as required.

1. Press the two keys at the same time and then the + key until the symbol flashes in the menu bar.
2. Select the user menu using the ← key.
   P:1 appears with flashing 1.
3. Press the ← key again.
   The set value 80°C (for example) appears and flashes.
4. Change the value by pressing the + or − keys. In this example, use the − key to change the value to 60°C.
5. Confirm the value with the ← key.
   P:1 appears with flashing 1.
6. Press the ←⊐ key twice to leave this menu and return to the operation display.

Note
The other parameters at user level are changed in the same way as P1. After step 2, use the + key to go to the required parameter.

Fig.44 Inputting the access code



AD-0000076-01

9.2.2 Changing the parameters at installer level

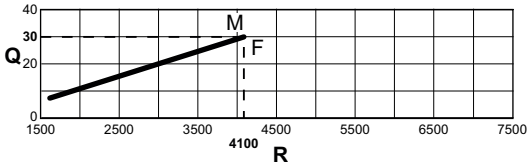
Parameters P17 to dF may only be modified by a recognised installer. To prevent unwanted modifications to settings, some parameters can only be changed after the special access code 0012 is entered.

1. Press the two keys at the same time and then press the + key until the symbol flashes in the menu bar.
2. Select the installer menu using the ⟵ key.
   CODE appears on the display.
3. Use the + or − keys to set the installer code 001.2
4. To confirm, press the ⟵ key.
   P:1 appears with a flashing 1.
5. Press the ⟵ key again.
   The value 80°C (for example) appears and flashes.
6. Change the value by pressing the + or − keys. In this example, press the − key to set the value to 60°C.
7. Press the ⟵ key to confirm the value.
   P:1 appears with a flashing 1.
8. Set any other parameters by selecting them using the + or − keys.
9. Press the ⟵ key twice to leave this menu and return to the operation display.

Note
The boiler also returns to operating status if no keys are pressed for 3 minutes.

9.2.3 Setting the maximum load for CH operation

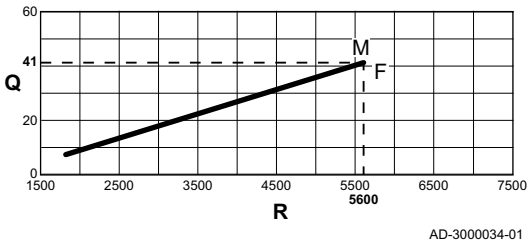
Fig.45 Load Quinta Pro 30



AD-3000035-01

M Maximum heat input
F Factory setting
Q Load (Hi) (kW)
R Fan speed (rpm)

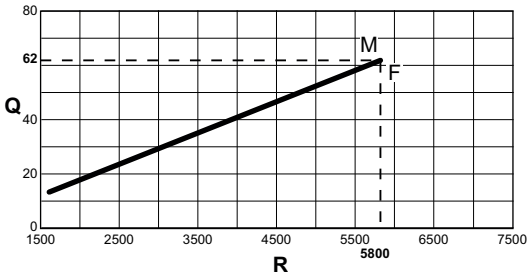
Fig.46 Load Quinta Pro 45



AD-3000034-01

M Maximum heat input
F Factory setting
Q Load (Hi) (kW)
R Fan speed (rpm)

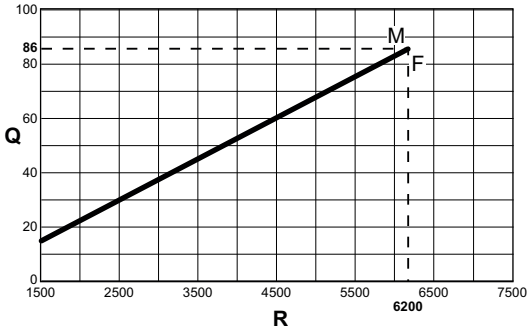
Fig.47 Load Quinta Pro 65



AD-3000033-01

M Maximum heat input
F Factory setting
Q Load (Hi) (kW)
R Fan speed (rpm)

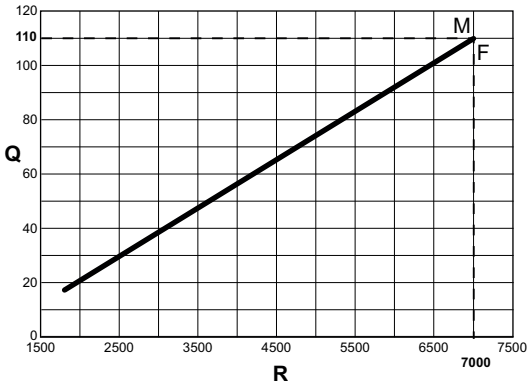
Fig.48 Load Quinta Pro 90



AD-3000032-01

M Maximum heat input
F Factory setting
Q Load (Hi) (kW)
R Fan speed (rpm)

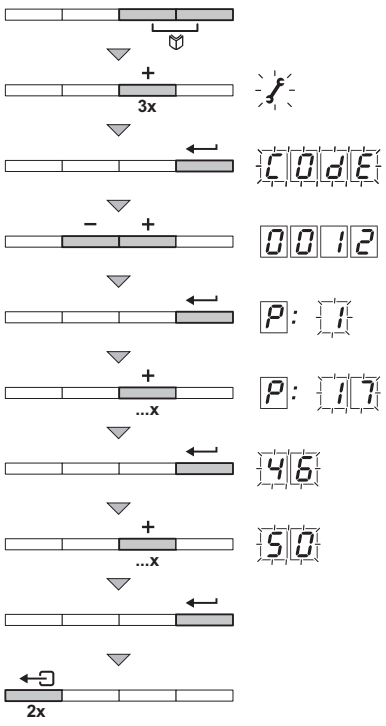
Fig.49 Load Quinta Pro 115



AD-3000031-01

M Maximum heat input
F Factory setting
Q Load (Hi) (kW)
R Fan speed (rpm)

Fig.50 Modifying P17



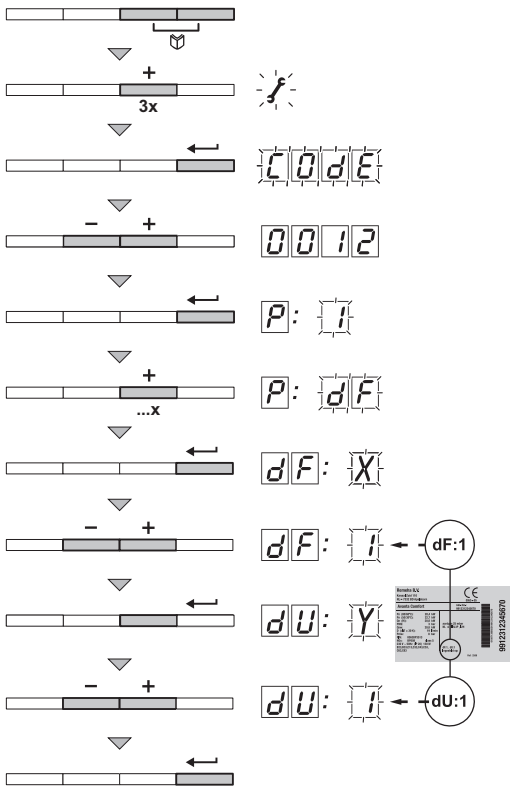
AD-0000077-01

See the graphs for the relationship between load and speed for natural gas. The speed can be changed using parameter P17. Proceed as follows:

1. Press the two keys at the same time and then press the + key until the symbol flashes in the menu bar.
2. Select the installer menu using the ↵ key.
   CODE appears on the display.
3. Use the + or − keys to set the installer code 0012.
4. To confirm, press the ↵ key.
   P:1 appears with a flashing 1.
5. Press the + key to go to parameter P:17.
6. To confirm, press the ↵ key.
7. Press the + key to increase the speed, for example from 46 to 50 (see graphs for the corresponding output).
8. To confirm, press the ↵ key.
9. Press the ↵ key twice to leave this menu and return to the operation display.

9.2.4 Return to the factory settings

Fig.51 Resetting factory settings

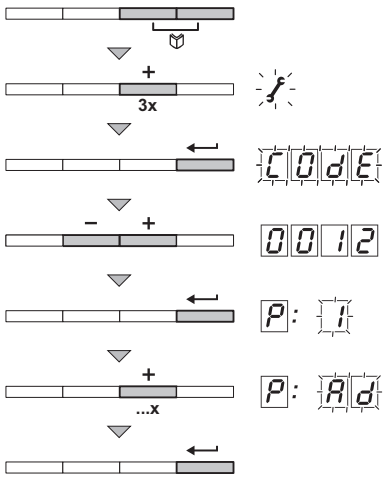


AD-0000078-01

1. Press the two keys at the same time and then press the + key until the symbol flashes in the menu bar.
2. Select the installer menu using the ⟵ key.
   CODE appears on the display.
3. Use the + or − keys to set the installer code 001.2
4. To confirm, press the ⟵ key.
   P:1 appears with a flashing 1.
5. Press the + key several times until P:dF appears on the display with a flashing d.F
6. To confirm, press the ⟵ key.
   dF appears with a flashing X. This is the current value of X for dF. Check this against the value of X on the type plate.
7. Enter the value of X shown on the type plate using the + or − keys.
8. To confirm, press the ⟵ key.
   dF:Y appears with a flashing Y. This is the current value of Y for dU. Check this against the value of Y on the type plate.
9. Enter the value of Y shown on the type plate using the + or − keys.
10. To confirm, press the ⟵ key.
    The factory settings are reset.
11. The display returns to the current operating mode.

9.2.5 Carrying out an auto-detect

Fig.52 Carrying out an auto-detect



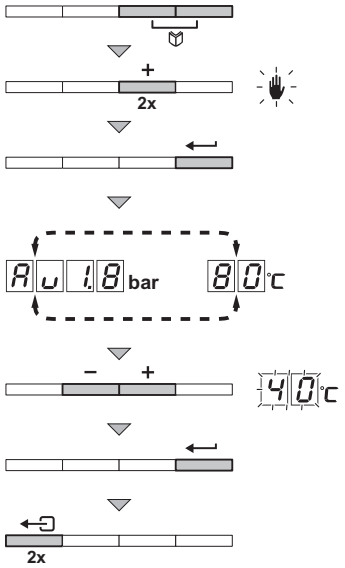
AD-0000079-01

After removing a PCB, an auto-detect must be carried out. Proceed as follows:

1. Press the two keys at the same time and then press the + key until the symbol flashes in the menu bar.
2. Select the installer menu using the ⟵ key.
   CODE appears on the display.
3. Use the + or − keys to set the installer code 001.2
4. To confirm, press the ⟵ key.
   P:1 appears with a flashing 1.
5. Press the + key several times until P:Ad appears on the display with a flashing A.d
6. To confirm, press the ⟵ key.
   Auto-detect is carried out.
7. The display returns to the current operating mode.

9.2.6 Setting the manual mode

Fig.53 Setting manual mode



AD-0000080-01

In some cases, it may be necessary to set the boiler to manual mode, for example when the controller has not yet been connected. The boiler can be set to automatic or manual mode via the ✋ symbol. Proceed as follows:

1. Press the two ⌂ keys at the same time and then press the ⊕ key until the symbol flashes in the menu bar.✋
2. Press the ↵ key; the display will show:
   either the text Au with the current water pressure (only if a water pressure sensor is connected).
   or the minimum flow temperature value.
3. Press the ⊕ or ⊖ keys to temporarily increase this value in manual mode.
4. To confirm, press the ↵ key.
   The boiler is now set to manual mode.
5. Press the ⏎ key twice to leave this menu and return to the operation display.

9.3 Displaying the measured values

The control unit continually registers various values from the boiler and the connected sensors. These values can be read on the control panel of the boiler.

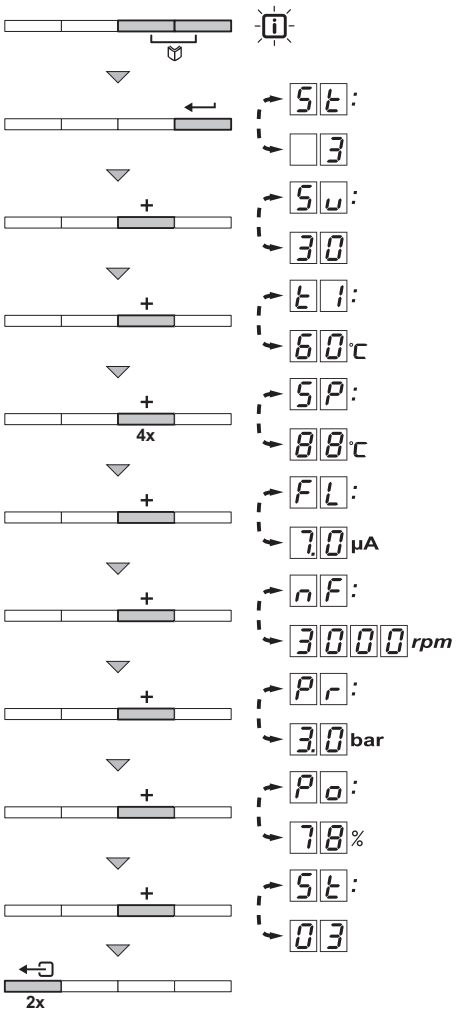
9.3.1 Reading the various current values

The following current values can be read in the information menu ⓘ:

- St = Status.
- Su = Sub-status.
- t1 = Flow temperature (°C).
- t2 = Return temperature (°C).
- t3 = Calorifier temperature (°C).
- t4 = Outside temperature (°C) (only with outside sensor).
- t5 = Solar boiler temperature (°C).
- SP = Internal set point (°C).
- FL = Ionisation current (µA).
- nF = Fan speed (rpm).
- Pr = Water pressure (bar (MPa)).
- Po = Supplied relative heat output (%).

The current values can be read as follows:

Fig.54 Reading current values

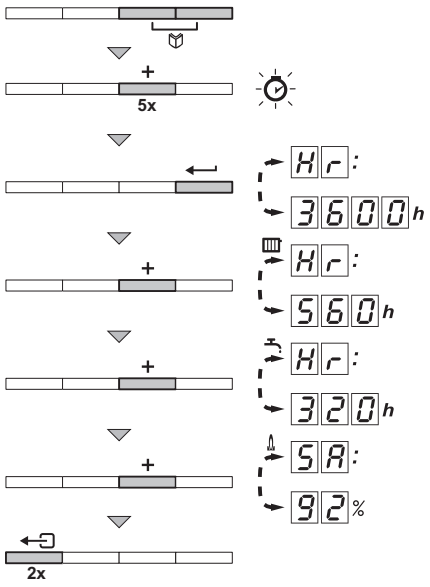


AD-0000073-01

1. Press the two keys at the same time.
   The symbol flashes.
2. Confirm by pressing the key.
   The screen alternates between the parameter St and the current status, e.g. 3.
3. Press the key.
   The screen alternates between the parameter Su and the current sub-status, e.g. 30.
4. Press the key.
   The screen alternates between the parameter t1 and the current flow temperature, e.g. 60 °C.
5. Press the key successively to scroll through the various parameters t2, t3, t4, t5.
6. Press the key.
   The screen alternates between the parameter SP and the internal setpoint, e.g. 88 °C.
7. Press the key.
   The screen alternates between the parameter FL and the current ionisation current, e.g. 7.0 µA.
8. Press the key.
   The screen alternates between the parameter nF and the current fan speed, e.g. 3000 rpm.
9. Press the key.
   The screen alternates between the parameter Pr and the current water pressure, e.g. 3.0 bar. If no water pressure sensor is connected, **[-.-]**appears on the display.
10. Press the key.
    The screen alternates between the parameter Po and the current modulation percentage, e.g. 78 %.
11. Press the key.
    The readout cycle starts again with the parameter St.
12. Press the key twice to exit this menu and return to the operation display.

9.3.2 Reading out the hour counter and percentage of successful starts

Fig.55 Reading out the hour counter



AD-0000074-01

1. Press the two keys at the same time and then press the key until the symbol flashes in the menu bar.
2. Press the key.
   The display alternates between Hr and the number of boiler operating hours, for example 3600.
3. Press the key; the display shows .
   The display alternates between Hr and the number of burning hours for CH operation, for example 560.
4. Press the key; the display shows .
   The display alternates between SA and the percentage of successful starts, for example 92 %.
5. Press the key twice to leave this menu and return to the operation display.

9.3.3 Status and sub-status

The information menu ⓘ gives the following status and sub-status numbers:

Tab.30 Status and sub-status numbers

Status St		Sub-status Su	
0	Stand-by mode	0	Stand-by mode
1	Boiler start (heat demand)	1	Anti-swing
		2	Control three-way valve
		3	Start pump
		4	Wait for the correct temperature before burner start
2	Burner start	10	Open flue gas damper/external gas valve
		11	Increase fan speed
		13	Pre-ventilation
		14	Wait for release signal
		15	Burner on
		17	Pre-ignition
		18	Main ignition
		19	Flame detection
		20	Intermediate ventilation
3	Burning on CH operation	30	Temperature control
		31	Limited temperature control (ΔT protection)
		32	Capacity control
		33	Temperature gradient protection level 1 (modulate down)
		34	Temperature gradient protection level 2 (low load)
		35	Temperature gradient protection level 3 (blocking)
		36	Modulate up for flame control
		37	Temperature stabilisation time
		38	Cold start
4	DHW mode active	30	Temperature control
		31	Limited temperature control (ΔT protection)
		32	Capacity control
		33	Temperature gradient protection level 1 (modulate down)
		34	Temperature gradient protection level 2 (low load)
		35	Temperature gradient protection level 3 (blocking)
		36	Modulate up for flame control
		37	Temperature stabilisation time
		38	Cold start
5	Burner stop	40	Burner off
		41	Post ventilation
		42	Close flue gas damper/external gas valve
		43	Recirculation protection
		44	Stop fan
6	Boiler stop (end of heat demand)	60	Pump post circulation
		61	Pump off
		62	Control three-way valve
		63	Start anti-swing

Status St		Sub-status Su	
8	Control stop	0	Wait for burner start
		1	Anti-swing
9	Blocking	XX	Blocking code XX
17	Bleed	0	Stand-by mode
		2	Control three-way valve
		3	Start pump
		61	Pump off
		62	Control three-way valve

10 Maintenance

10.1 General

The boiler does not require a lot of maintenance. Nevertheless, the boiler must be inspected and maintained periodically. To determine the best time for servicing, the boiler is equipped with an automatic service message. The control unit determines when this service message appears. Depending on boiler use, the first service message appears no later than 3 years after installation of the boiler.

Caution
- Maintenance operations must be completed by a qualified installer.
- During inspection or maintenance work, always replace all gaskets of the disassembled parts.
- Replace defective or worn parts with original spare parts.
- An annual inspection is mandatory.

10.2 Service message

The boiler display will clearly indicate that a service is required at the appropriate time. Use the automatic service message for preventive maintenance to keep faults to a minimum. The service messages show which service kit must be used. These service kits contain all parts and gaskets that are required for the relevant service. These service kits (A, B or C), put together by Remeha, are available from your spare parts supplier.

Note
- A service message must be followed up within 2 months. Therefore, call your installer as soon as possible.
- If the iSense modulating thermostat is connected to the boiler, this service message can also be forwarded to the iSense. Consult the thermostat manual.

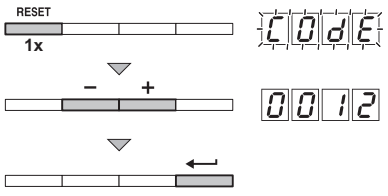
Caution
Reset the service message following every service.

10.2.1 Resetting the service messages

A service message on the boiler display must be reset by a qualified installer after the maintenance service has been carried out using the relevant service kit. Proceed as follows:

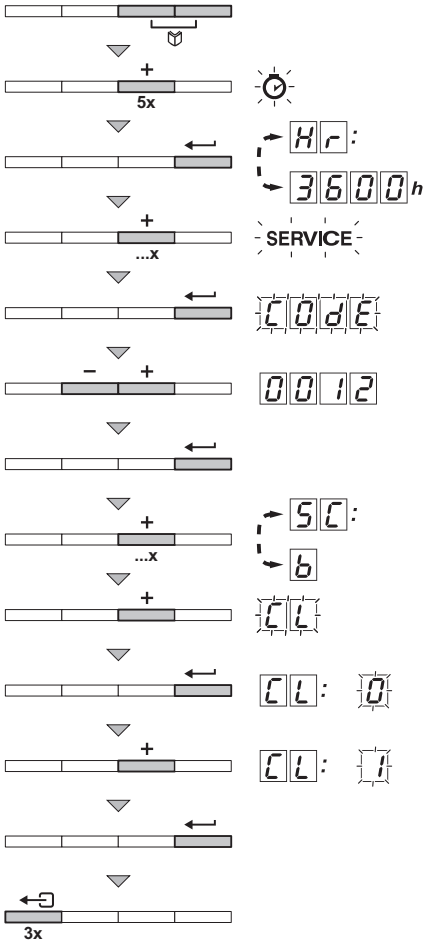
1. When the maintenance message is displayed, press the **RESET** key once.
   CodE appears on the display.
2. Use the + or − keys to set the installer code 001.2
3. Confirm by pressing the ⟵ key.
   The maintenance message is reset. The display returns to the current operating mode.

Fig.56 Setting the installer code



10.2.2 Starting a new service interval

Fig.57 Starting a new service interval



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For an interim service it is advisable to read out in the boiler service menu what maintenance service should be carried out. Use the indicated Remeha service kits (A, B or C). This service message must be prevented by carrying out a reset. Start the next service interval. Proceed as follows:

1. Press the two keys at the same time and then press the + key until the symbol flashes in the menu bar.
2. Press the ⟵ key.
   The display alternates between Hr and the number of boiler operating hours, for example 3600.
3. Press key + several times until **SERVICE** flashes on the menu bar.
4. Press the ⟵ key.
   The display shows CODE.
5. Use the + or − keys to set the installer code 001.2
6. Confirm by pressing the ⟵ key.
7. Press the + key several times until SC:b appears on the display with a flashing (for example).b In this example, the next service message is **SERVICE** b.
8. Press the + key again.
   CL appears on the display.
9. Press the ⟵ key.
   CL:0 appears with a flashing 0.
10. Press the + key to adjust the setting to 1.
11. Confirm by pressing the ⟵ key.
    The new service interval begins.
12. Press the ⟵ key 3 times to leave this menu and return to the operation display.

10.3 Standard inspection and maintenance operations

Warning
Always wear safety goggles and a dust mask during cleaning work (involving compressed air).

For a service, always perform the following standard inspection and maintenance operations.

Caution
- Check whether all gaskets have been positioned properly (absolutely flat in the appropriate groove means they are gas tight).
- During the inspection and maintenance operations, water (drops, splashes) must never come into contact with the electrical parts.

10.3.1 Checking the water pressure

1. Check the water pressure.
   The water pressure must be at least 0.8 bar. If the water pressure is too low, the symbol will appear.

Note
For open vented systems, the water pressure must be at least 0.3 bar (Q30/Q45/Q65/Q90) or 0.5 bar (Q115).

2. If necessary: top up the central heating system.

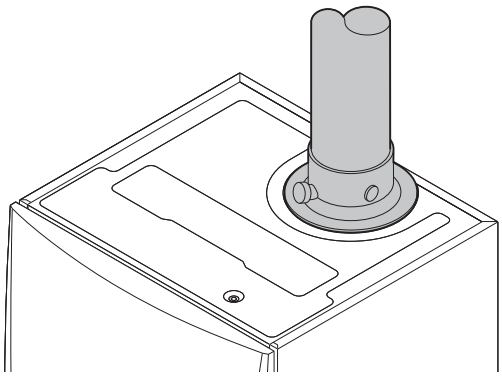
10.3.2 Checking the ionisation current

1. Check the ionisation current at full load and at low load.
   The value is stable after 1 minute.
2. Clean or replace the ionisation/ignition electrode if the value is lower than 4 µA.

For more information, see
Replacing the ionisation/ignition electrode, page 62

10.3.3 Checking the flue gas outlet/air supply connections

Fig.58 Checking flue gas outlet/air supply connections



1. Check the flue gas outlet and air supply connections for condition and tightness.

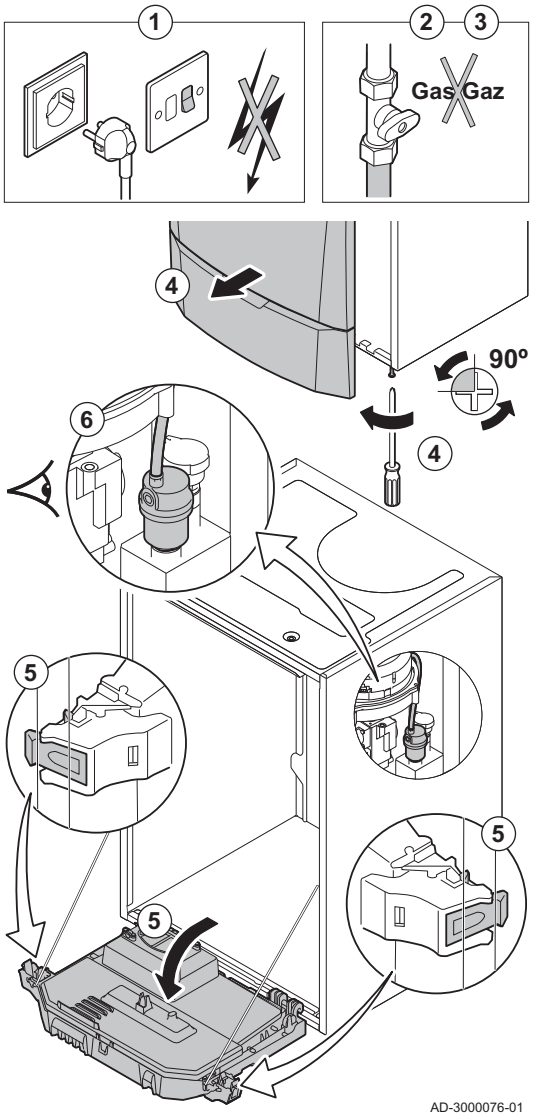
10.3.4 Checking the combustion

Combustion is checked by measuring the O_2/CO_2 percentage in the flue gas outlet duct.

For more information, see
Checking and setting the gas/air ratio, page 42

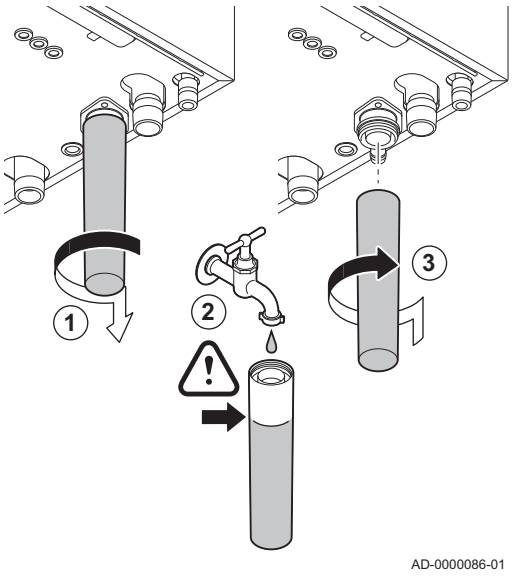
10.3.5 Checking the automatic air vent

Fig.59 Checking the automatic air vent



1. Switch off the boiler's electrical connection.
2. Close the gas tap under the boiler.
3. Close the main gas tap.
4. Unscrew the two screws located under the front housing by a quarter turn and remove the front housing.
5. Tilt the instrument box forwards by opening the clips on the sides.
6. Check whether water is visible in the hose of the automatic air vent.
7. In the event of a leak, replace the air vent.

Fig.60 Cleaning the siphon



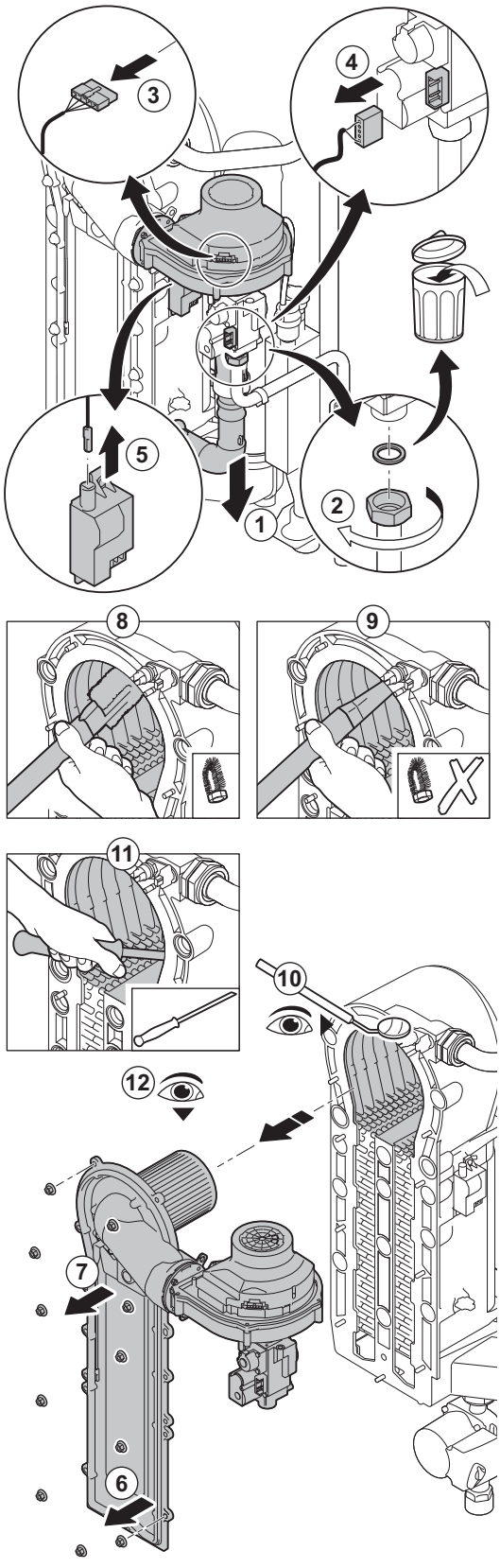
10.3.6 Cleaning the siphon

Danger
The siphon must always be sufficiently filled with water. This prevents flue gases from entering the room.

1. Dismantle the siphon and clean it.
2. Fill the siphon up with water.
3. Fit the siphon.

10.3.7 Checking the burner and cleaning the heat exchanger

Fig.61 Checking the burner and cleaning the heat exchanger



1. Remove the air inlet flue on the venturi.
2. Loosen the gland on the gas valve unit.
3. Remove the plugs from the fan.
4. Remove the plugs from the gas valve unit.
5. Remove the ignition electrode plug from the ignition transformer.
6. Remove the front plate from the heat exchanger.
7. Carefully lift the front plate, including the burner and fan, away from the heat exchanger.
8. Use a vacuum cleaner fitted with a special endpiece (accessory) to clean the top part of the heat exchanger (combustion chamber).
9. Thoroughly clean with the vacuum cleaner again without the top cleaning brush on the endpiece.
10. Check (e.g. using a mirror) whether any visible contamination has been left behind. If it has, remove it with the vacuum cleaner.
11. Clean the lower section of the heat exchanger with the special cleaning blade (accessory).
12. Burner maintenance is almost never required; it is self-cleaning:
    - If necessary, carefully clean the cylinder-shaped burner with compressed air.
    - Check that the burner cover of the dismantled burner is free from cracks and/or damage. If not, replace the burner.
13. Reassemble the unit in the reverse order.

Caution

- Remember to reconnect the fan plug.
- Check that the gasket is correctly positioned between the mixing elbow and the heat exchanger (the gasket must lie absolutely flat in the appropriate groove to ensure that no gas can leak).

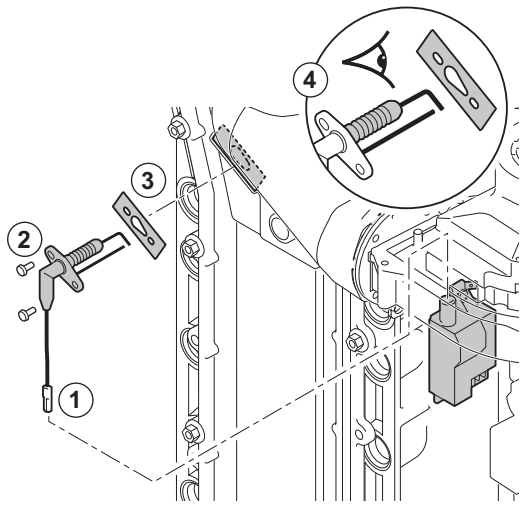
14. Open the gas supply and switch the power supply to the boiler back on.

10.4 Specific maintenance work

Perform the specific maintenance work if this proves to be necessary following the standard inspection and maintenance work. To conduct the specific maintenance work:

10.4.1 Replacing the ionisation/ignition electrode

Fig.62 Replacing the ionisation/ignition electrode



The ionisation/ignition electrode must be replaced if:

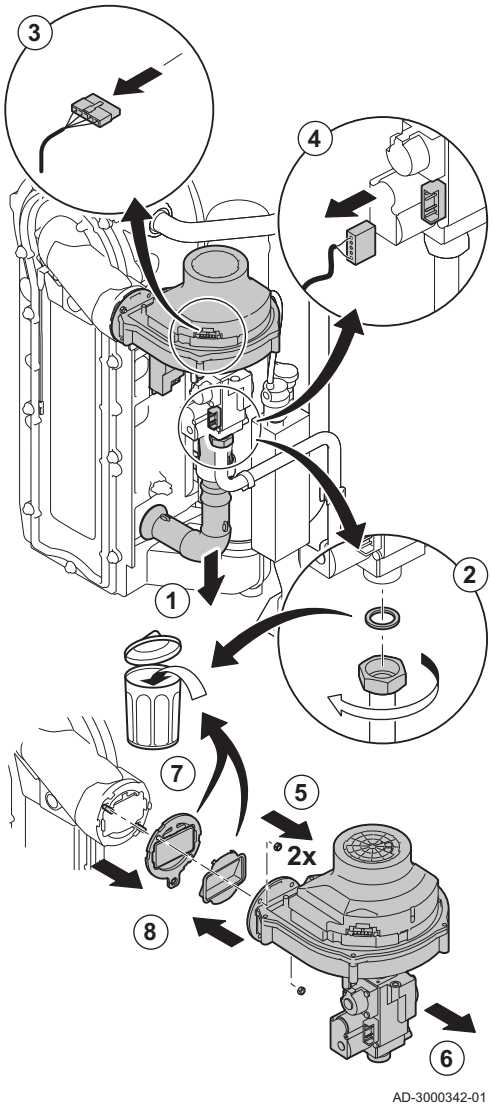
- The ionisation current is < 4 µA.
- The electrode is damaged or worn.
- The electrode is included in the service kit.

1. Remove the plug of the electrode from the ignition transformer.

Note
The ignition cable is fixed to the electrode and therefore may not be removed.

2. Remove the two screws.
3. Remove the entire component.
4. Fit the new ionisation/ignition electrode.
5. Reassemble the unit in the reverse order.

Fig.63 Checking the non-return valve



10.4.2 Checking the non-return valve

1. Remove the air inlet flue on the venturi.
2. Loosen the gland on the gas valve unit.
3. Remove the plug from the fan.
4. Remove the plug from the gas valve unit.
5. Dismantle the fan.
6. Remove the fan together with the mixing elbow unit.
7. Inspect the non-return valve and replace it in the event of a defect or damage, or if the maintenance kit contains a non-return valve.
8. Reassemble in the reverse order.

10.4.3 Reassembling the boiler

1. Fit all removed parts in the reverse order.

Caution
During inspection and maintenance operations, always replace all gaskets on the parts removed.

2. Fill the siphon with water.
3. Put the siphon back in place.
4. Carefully open the water tap.
5. Fill the installation with water.
6. Vent the installation.
7. Top up with more water if necessary.
8. Check the tightness of the gas and water connections.
9. Put the boiler back into operation.

11 Troubleshooting

11.1 Error codes

The boiler is fitted with an electronic regulation and control unit. The heart of the control is a microprocessor, the **Comfort Master©**, which both protects and controls the boiler. In the event of an error, a corresponding code is displayed.

The meaning of the error codes can be found in the error table.

Note
Note the error code displayed. The error code is needed to find the cause of the error quickly and correctly and for any support from Remeha.

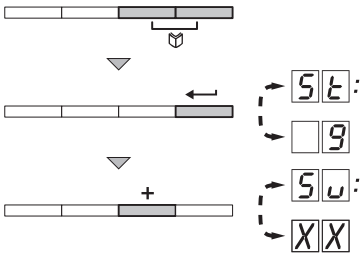
11.1.1 Blocking

A (temporary) blocking mode is a boiler status, resulting from an abnormal state. The display shows a blocking code (for example SE:9). The control unit makes a number of attempts to start the boiler again. The blocking codes can be read out as follows:

1. Press the two keys at the same time.
2. Confirm by pressing key ⟵.
   The display alternates between SE and the blocking code :9.
3. Press the + key.
   SU. appears on the display.

Note
The boiler automatically returns to operation once the cause of the blocking has been removed.

Fig.64 Blocking code



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Tab.31 Blocking codes

Blocking code	Description	Possible cause	Check/solution
SU:0	Parameter error	Parameter error on the PSU PCB	• Reset dF and dU • Restore parameters with Recom
SU:1	Maximum flow temperature exceeded	No flow or insufficient flow	• Check the flow (direction, pump, valves) • Reasons for the heat demand
SU:2	Maximum increase of the flow temperature has been exceeded	• No flow or insufficient flow • Sensor error	• Check the flow (direction, pump, valves) • Check the water pressure • Check that the sensors are operating correctly • Check that the sensor has been fitted properly • Check the cleanliness of the heat exchanger
SU:7	Maximum difference between the flow and return temperature exceeded	• No flow or insufficient flow • Sensor error	• Check the flow (direction, pump, valves) • Check the water pressure • Check that the sensors are operating correctly • Check that the sensor has been fitted properly • Check the cleanliness of the heat exchanger
SU:8	No release signal	• External cause • Parameter error • Bad connection	• Remove external cause • Check parameters • Check the wiring
SU:9	Phase and neutral of mains supply mixed up	• Mains supply incorrectly wired • Floating network or 2-phase network	• Invert phase and neutral • Set parameter P43 to 0

Blocking code	Description	Possible cause	Check/solution
SU:10	Blocking input is active	• External cause • Parameter error • Bad connection	• Remove external cause • Check parameters • Check the wiring
SU:11	Blocking input active or frost protection active	• External cause • Parameter error • Bad connection	• Remove external cause • Check parameters • Check the wiring
SU:13	Communication error with the SCU PCB	• Poor connection with BUS • SCU PCB not present in boiler	• Check the wiring • Carry out automatic detection
SU:14	Water pressure too low	Water pressure too low	• Check the water pressure • Fill the boiler and the installation with water
SU:15	Gas pressure too low	• No flow or insufficient flow • Incorrect setting on gas pressure switch (Gps) on SCU PCB	• Check that the gas valve is fully opened • Check the gas supply pressure • Check whether the Gps has been correctly fitted • Replace the Gps switch if necessary
SU:16(1)	Configuration error or SU PCB not recognised	Incorrect SU PCB for this boiler	Replace SU PCB
SU:17(1)	Configuration error or default parameter table incorrect	Parameter error in the PCU PCB	Replace PCU PCB
SU:18(1)	Configuration error or PSU PCB not recognised	Incorrect PCU PCB for this boiler	Replace PCU PCB
SU:19(1)	Configuration error or parameters dF and dU unknown	-	Reset dF and dU
SU:20(1)	Configuration procedure active	Active for a short time after switching on the boiler	No action
SU:21	Communication error with the SU PCB	Bad connection	Check whether the PCU PCB has been correctly fitted in the connector on the SU PCB
SU:22	No flame during operation	No ionisation current	• Vent the gas supply to remove air • Check that the gas valve is fully opened • Check the gas supply pressure • Check the operation and setting of the gas valve unit • Check that the air supply inlet and flue gas outlet are not blocked • Check that there is no recirculation of flue gases
SU:25	Internal error in SU PCB	-	Replace SU PCB

(1) These blocks are not stored in the error memory

11.1.2 Lock out

If the blocking conditions still exist after various start attempts, the boiler goes into lockout (also called error). The boiler will also lock out if an error is signalled anywhere in the boiler. An error code will appear on the display. The error code is displayed as follows:

In a red flashing display:
- the symbol ⚠
- the symbol **RESET**
- the error code, for example E:01

The meaning of the error codes can be found in the error table. Note the error code.

Note
The error code is needed to find the cause of the error quickly and correctly and for any support from Remeha.

Press the **RESET** key for two seconds. If the error code continues to display, search for the cause in the error table and apply the solution.

Note
If the display does not show **RESET** but rather ⏻, the boiler must be switched off and then switched on again 10 seconds later before the error can be reset.

Tab.32 Error codes

Error code	Description	Possible cause	Check/solution
E:00	Parameter storage unit PSU not found	Bad connection	Check the wiring
E:01	Safety parameters not OK	• Bad connection • Defective PSU	• Check the wiring • Replace PSU
E:02	Flow temperature sensor short circuited	• Bad connection • Sensor failure • Sensor not connected or incorrectly connected	• Check the wiring • Check that the sensors are operating correctly • Check that the sensor has been fitted properly • Replace the sensor if necessary
E:03	Flow temperature sensor open	• Bad connection • Sensor failure • Sensor not connected or incorrectly connected	• Check the wiring • Check that the sensors are operating correctly • Check that the sensor has been fitted properly • Replace the sensor if necessary
E:04 E:05	• Temperature of heat exchanger too low • Temperature of heat exchanger too high	• Bad connection • Sensor failure • Sensor not connected or incorrectly connected • No flow	• Check the wiring • Replace the sensor if necessary • Vent the central heating system • Check the flow (direction, pump, valves) • Check the water pressure • Check that the sensors are operating correctly • Check that the sensor has been fitted properly • Check the cleanliness of the heat exchanger • If present: check setting of boiler type parameter
E:06	Return temperature sensor short-circuited	• Bad connection • Sensor failure • Sensor not connected or incorrectly connected	• Check the wiring • Check that the sensors are operating correctly • Check that the sensor has been fitted properly • Replace the sensor if necessary
E:07	Open circuit in return temperature sensor	• Bad connection • Sensor failure • Sensor not connected or incorrectly connected	• Check the wiring • Check that the sensors are operating correctly • Check that the sensor has been fitted properly • Replace the sensor if necessary

Error code	Description	Possible cause	Check/solution
E:08 E:09	• Return temperature too low • Return temperature too high	• Bad connection • Sensor failure • Sensor not connected or incorrectly connected • No flow	• Check the wiring • Replace the sensor if necessary • Vent the central heating system • Check the flow (direction, pump, valves) • Check the water pressure • Check that the sensors are operating correctly • Check that the sensor has been fitted properly • Check the cleanliness of the heat exchanger • If present: check setting of boiler type parameter
E:10 E:11	Difference between the flow and return temperatures too great	• Sensor failure • Sensor not connected or incorrectly connected • No flow	• Replace the sensor if necessary • Vent the central heating system • Check the flow (direction, pump, valves) • Check the water pressure • Check that the sensors are operating correctly • Check that the sensor has been fitted properly • Check the cleanliness of the heat exchanger • Check that the heating pump is operating correctly • If present: check setting of boiler type parameter
E:12	Temperature of heat exchanger above normal range (high-limit thermostat STB)	• Bad connection • Sensor failure • Sensor not connected or incorrectly connected • No flow	• Check the wiring • Replace the sensor if necessary • Vent the central heating system • Check the flow (direction, pump, valves) • Check the water pressure • Check that the sensors are operating correctly • Check that the sensor has been fitted properly • Check the cleanliness of the heat exchanger • If present: check setting of boiler type parameter
E:14	Five failed burner starts	No ignition spark	• Check cabling of ignition transformer • Check the ionisation/ignition electrode • Check breakdown to earth • Check the condition of the burner cover • Check the earthing • Defective control SU PCB
		Ignition spark but no flame	• Vent the gas supply to remove air • Check that the gas valve is fully opened • Check the gas supply pressure • Check the operation and setting of the gas valve unit • Check that the air supply inlet and flue gas outlet are not blocked • Check the wiring on the gas valve unit • Defective control SU PCB
		Flame present, but ionisation has failed or is inadequate	• Check that the gas valve is fully opened • Check the gas supply pressure • Check the ionisation/ignition electrode • Check the earthing • Check the wiring on the ionisation/ignition electrode

Error code	Description	Possible cause	Check/solution
E:16	False flame signal	• Ionisation current measured but no flame should be present • Ignition transformer defective • Defective gas valve • The burner remains very hot: O_2/CO_2 too high	• Check the ionisation/ignition electrode • Check the gas valve and replace if necessary • Adjust O_2/CO_2 settings
E:17	Gas valve error SU PCB	• Bad connection • Defective SU PCB	• Check the wiring • Check the SU PCB and replace if necessary
E:34	Fan operation error	• Bad connection • Fan defective	• Check the wiring • Replace the fan if necessary • Check for adequate draw on the chimney connection
E:35	Flow and return reversed	• Bad connection • Sensor failure • Sensor not connected or incorrectly connected • Flow direction incorrect	• Replace the sensor if necessary • Check the flow (direction, pump, valves) • Check that the sensors are operating correctly • Check that the sensor has been fitted properly
E:36	5x flame loss	No ionisation current	• Vent the gas supply to remove air • Check that the gas valve is fully opened • Check the gas supply pressure • Check the operation and setting of the gas valve unit • Check that the air supply inlet and flue gas outlet are not blocked • Check that there is no recirculation of flue gases
E:37	Communication error with the SU PCB	Bad connection	Check whether the SU PCB has been correctly fitted in the connector on the PCU PCB
E:38	Communication error with the SCU PCB	• Bad connection • Defective SCU PCB	• Check the wiring • SCU Replace PCB
E:39	Blocking input in locked-out mode	• Bad connection • External cause • Incorrectly set parameter	• Check the wiring • Remove external cause • Check parameters
E:40	If present: HRU test fault	• Bad connection • External cause • Incorrectly set parameter	• Check the wiring • Remove external cause • Check parameters

11.2 Error memory

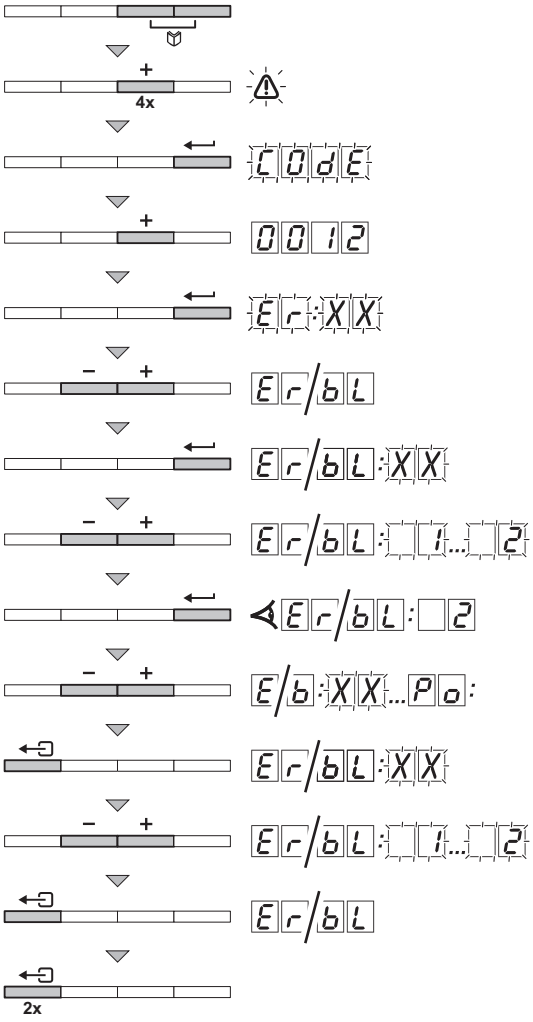
The boiler control unit has an error memory. It stores the last 16 errors that have occurred.

In addition to the error codes, the following data is also saved:

- Number of times that the error occurred: (n :XX).
- Boiler operating mode (St :XX).
- The flow temperature (t 1 :XX) and the return temperature (t2 :XX) when the error occurred.

To view the error memory, you must first enter the access code 0012.

Fig.65 Reading out an error



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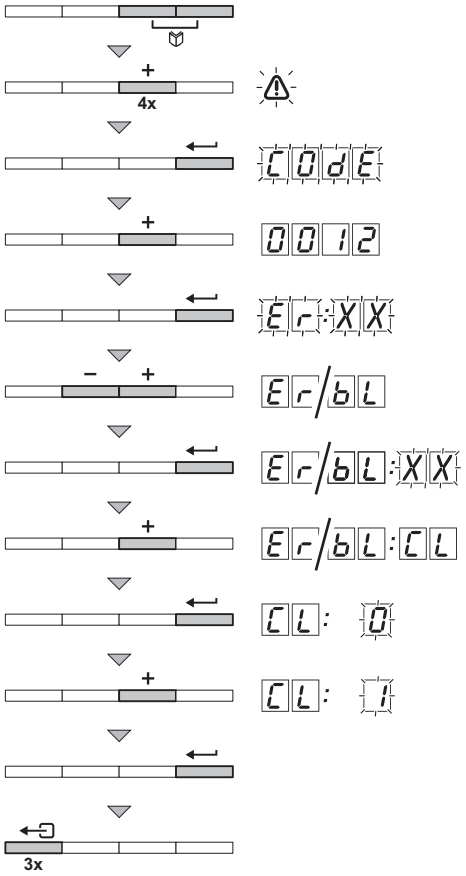
11.2.1 Reading out the error memory

1. Press the two keys at the same time and then press the + key until the symbol flashes in the menu bar.
2. Select the installer menu using the ⟵ key.
   CodE appears on the display.
3. Use the + or − keys to set the installer code 001.2
4. To confirm, press the ⟵ key.
   Er:XX appears on the display.
5. The error list or blocking list can be displayed by pressing the + or − key.
6. Confirm by pressing the ⟵ key.
   Er:XX appears with a flashing XX = last error that occurred, e.g. □.2
7. Use the + or − keys to scroll through the errors or blocks.
8. Press the ⟵ key to display the details of the errors or blocks.
9. Press the + or − key to view the following data:
   - n:1 = Number of times that the error occurred.
   - Hr = Number of operating hours.
   - St = Status.
   - Su = Sub-status.
   - t1 = Flow temperature (°C).
   - t2 = Return temperature (°C).
   - t3 = Calorifier temperature (°C).
   - t4 = Outside temperature (°C). Only if an outside temperature sensor is connected (accessory)
   - tS = Solar boiler temperature (°C).
   - SP = Internal set point (°C).
   - FL = Ionisation current (µA).
   - nF = Fan speed (rpm).
   - Pr = Water pressure (bar).
   - Po = Supplied relative heat output (%).
10. Press the ⟵ key to interrupt the display cycle.
    Er:XX appears with a flashing XX = last error that occurred.
11. Use the + or − keys to scroll through the errors or blocks.
12. Press the ⟵ key to show the error list or blocking list.
13. Press the key ⟵ twice to exit the error menu.

Fig.66 Clearing error memory



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11.2.2 Clearing error memory

1. Press the two keys at the same time and then press the + key until the symbol flashes in the menu bar.
2. Select the installer menu using the ⟵ key.
   CodE appears on the display.
3. Use the + or − keys to set the installer code 001.2
4. To confirm, press the ⟵ key.
   Er:XX appears on the display.
5. The error list or blocking list can be displayed by pressing the + or − key.
6. Confirm by pressing the ⟵ key.
   Er:XX appears with a flashing XX.
7. Press the + key several times until Er:CL appears on the display.
8. Press the ⟵ key.
   CL:0 appears with a flashing 0.
9. Press the + key to adjust the setting to 1.
10. Press the ⟵ key to delete the errors from the error memory.
11. Press the key ⟵ three times to exit the error memory.

12 Disposal

12.1 Removal/recycling

Note
Removal and disposal of the boiler must be carried out by a qualified person in accordance with local and national regulations.

To remove the boiler, proceed as follows:

1. Switch off the boiler's electrical connection.
2. Shut off the gas supply.
3. Shut off the water supply.
4. Drain the installation.
5. Remove the siphon.
6. Remove the air supply/flue gas outlet pipes.
7. Disconnect all pipes on the boiler.
8. Remove the boiler.

13 Spare parts

13.1 General

Only replace defective or worn boiler parts with original parts or recommended parts.

Send the part to be replaced to the Remeha Quality Control department if the relevant part is covered by the guarantee (see the General Terms of Sale and Delivery).

13.2 Parts

Fig.67 Quinta Pro 30 – 45

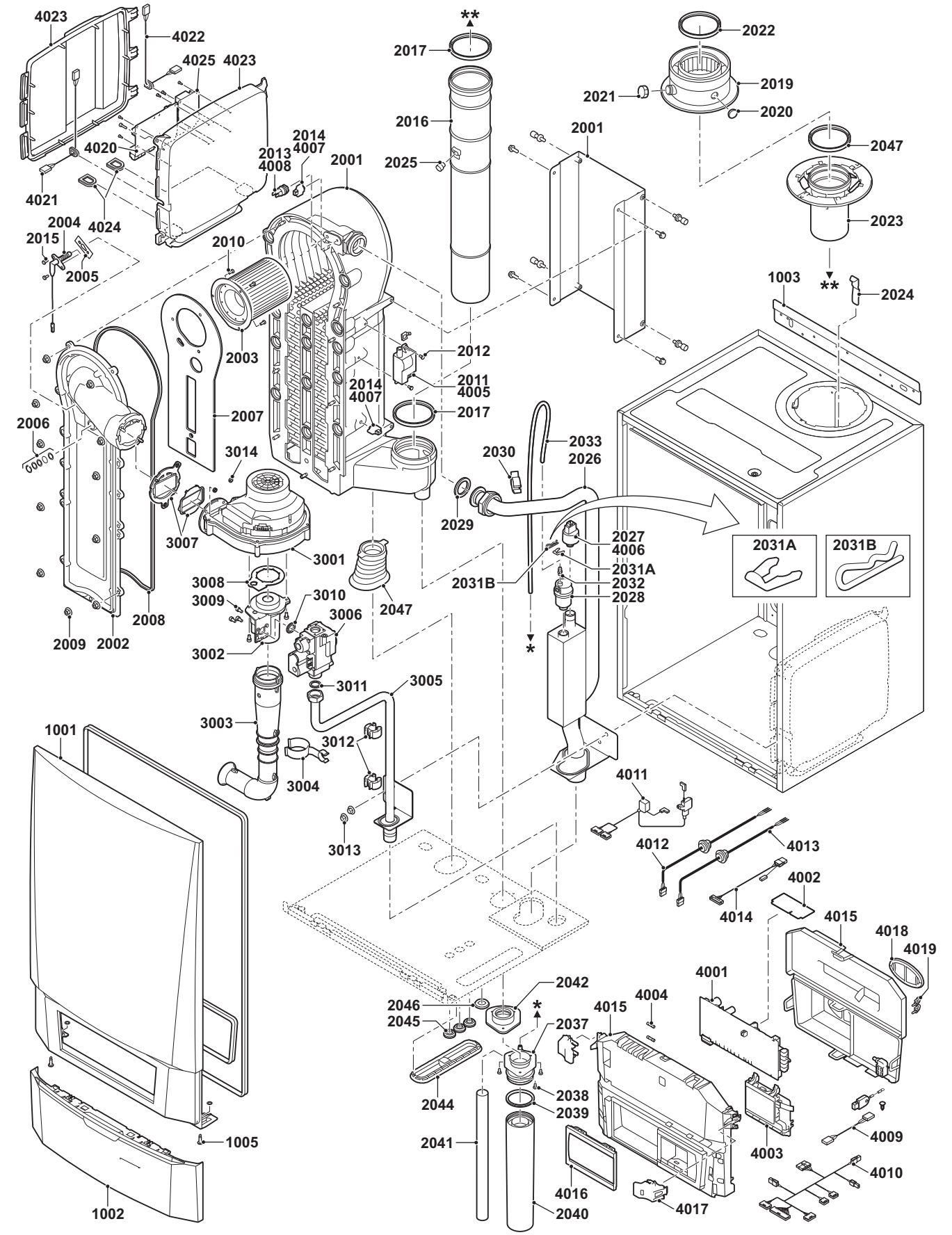

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Fig.68 Quinta Pro 65

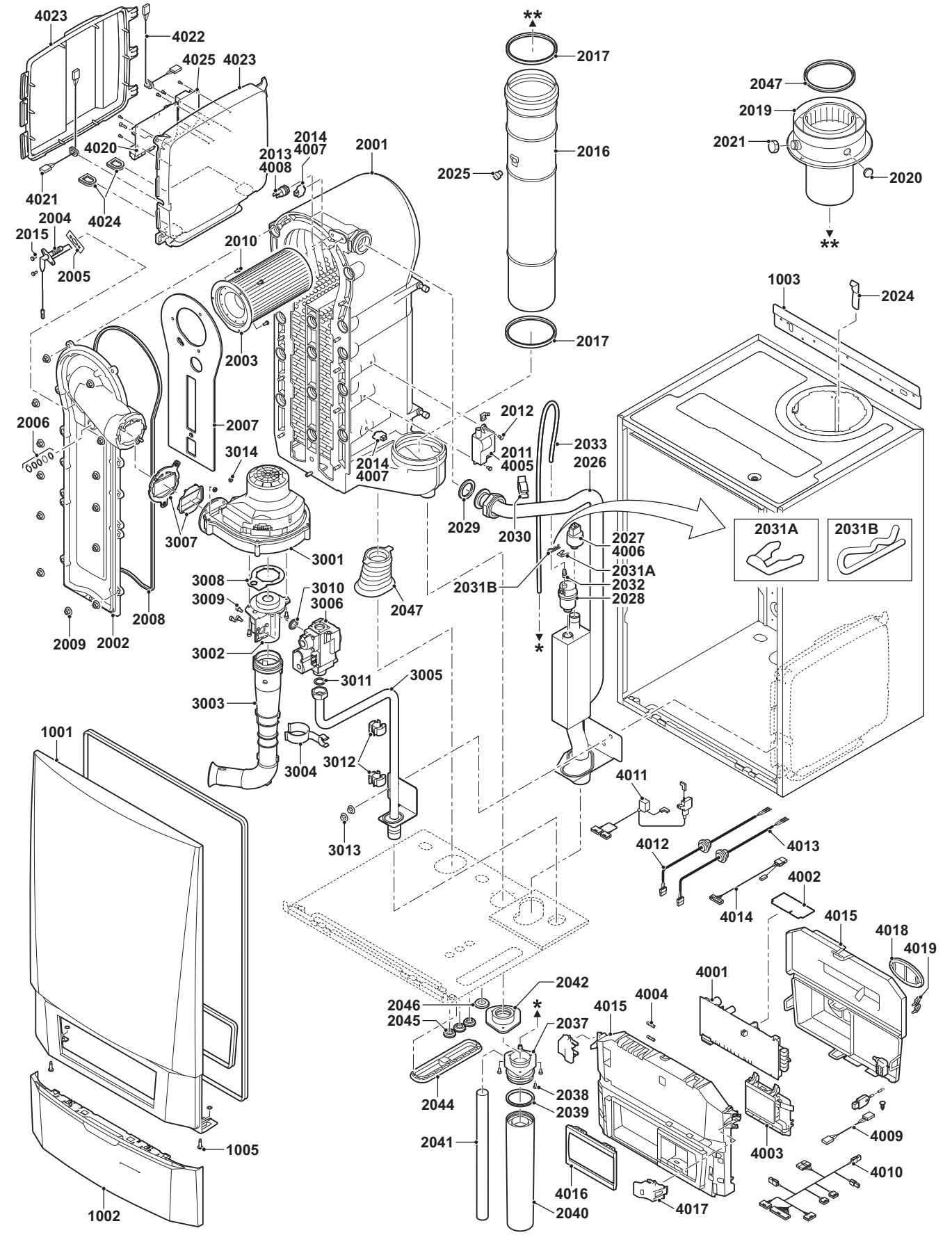

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Fig.69 Quinta Pro 90

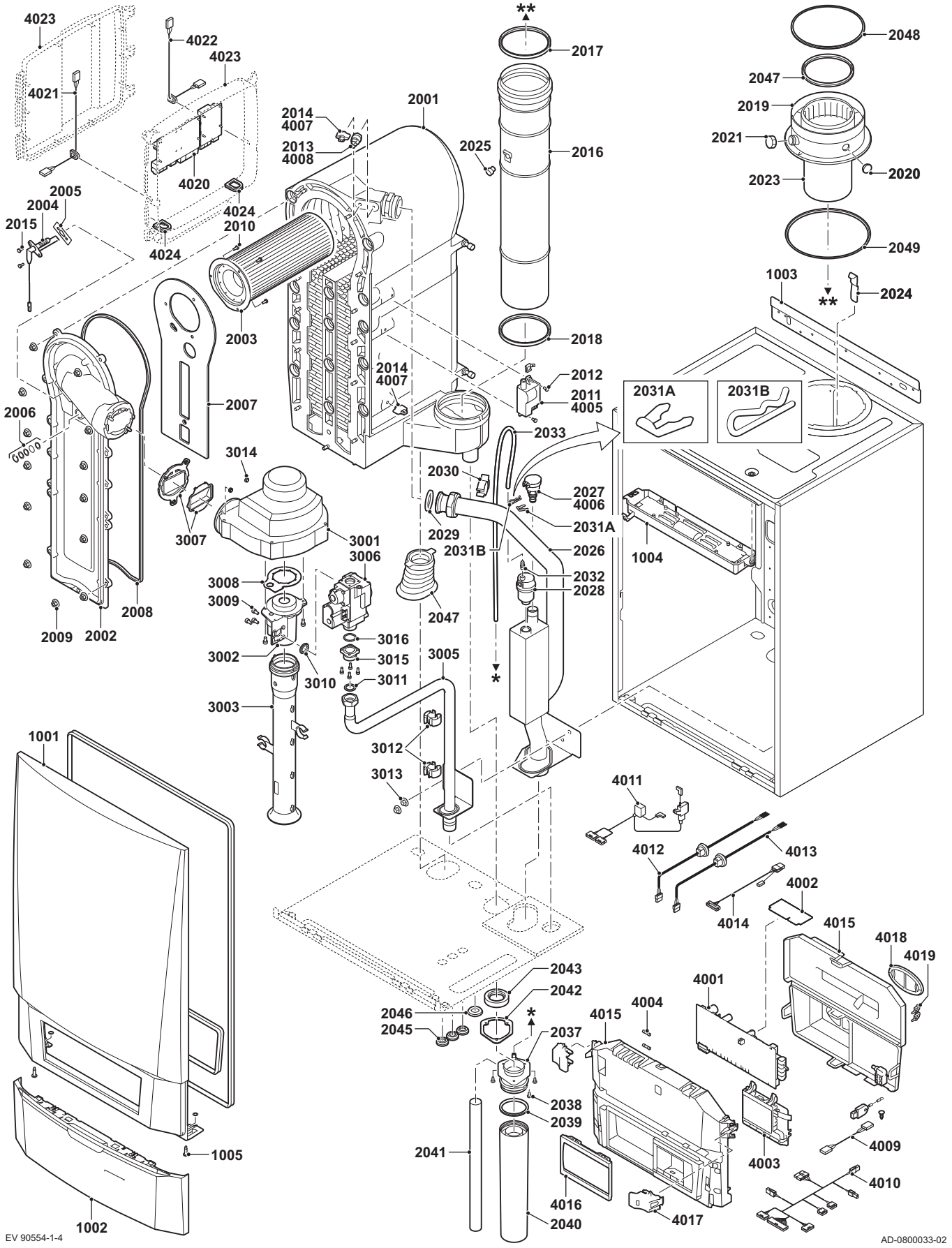
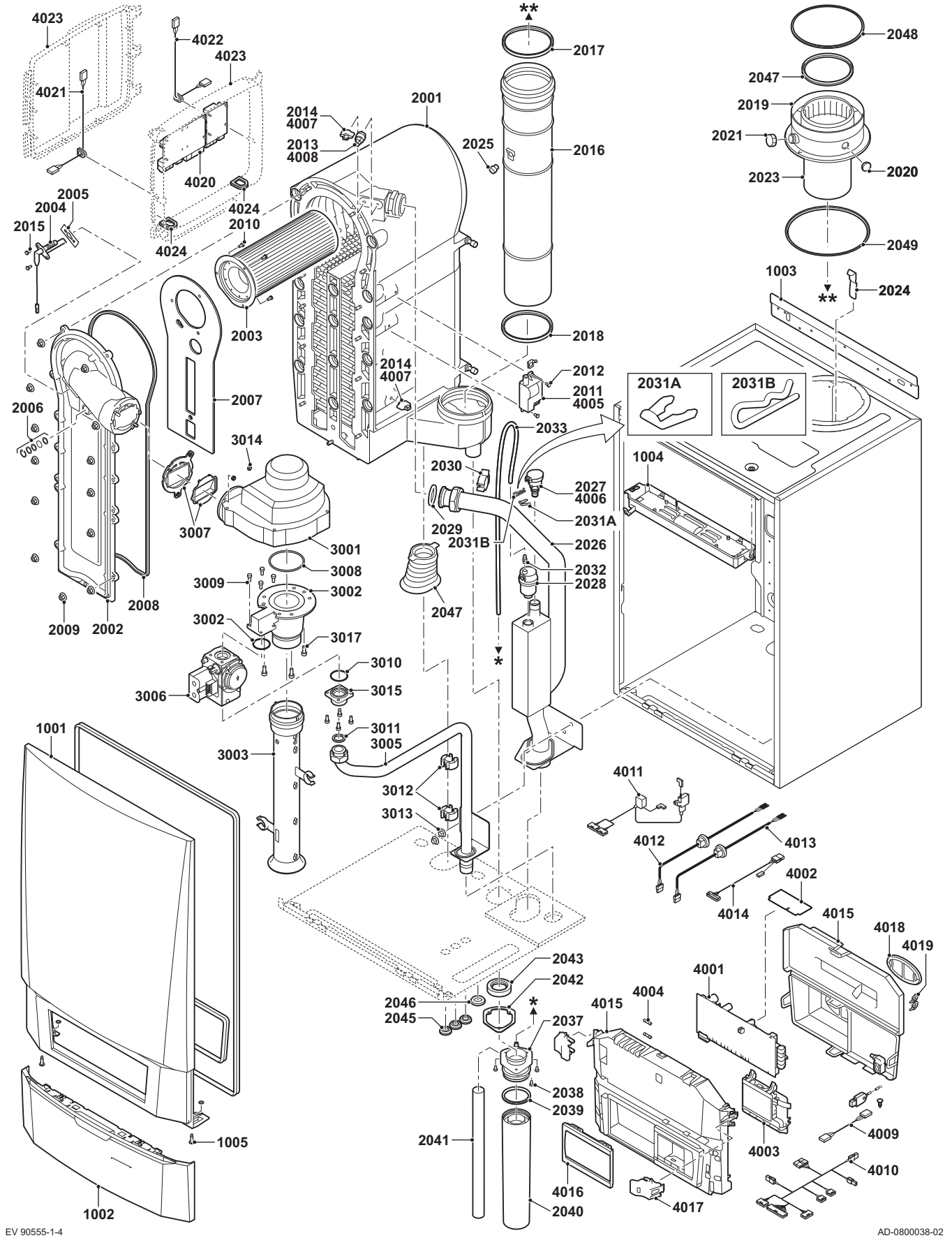


Fig.70 Quinta Pro 115



14 Appendix

14.1 ErP information

14.1.1 Product card

Tab.33 Product card

Remeha - Quinta Pro		30	45	65	90	115
Seasonal space heating energy efficiency class		A	A	A	-	-
Rated heat output *(Prated or Psup)*	kW	29	40	61	84	107
Seasonal space heating energy efficiency	%	93	93	93	-	-
Annual energy consumption	GJ	-	-	-	-	-
Sound power level L_{WA} indoors	dB	46	53	53	60	59

See
For specific precautions about assembling, installing and maintaining: Safety, page 6

14.1.2 Package sheet

Fig.71 Package sheet for boilers indicating the space heating energy efficiency of the package

Seasonal space heating energy efficiency of boiler

(1) ‘I’ %

Temperature control

from fiche of temperature control

Class I = 1%, Class II = 2%, Class III = 1.5%, Class IV = 2%, Class V = 3%, Class VI = 4%, Class VII = 3.5%, Class VIII = 5%

(2) + %

Supplementary boiler

from fiche of boiler

Seasonal space heating energy efficiency (in %)

( ) - ‘I’) x 0.1 = ± (3) %

Solar contribution

from fiche of solar device

Collector size (in m²) | Tank volume (in m³) | Collector efficiency (in %) | Tank rating (1): A* = 0.95, A = 0.91, B = 0.86, C = 0.83, D - G = 0.81

(‘III’ x) + (‘IV’ x) x 0.9 x (/100) x = + (4) %

(1) If tank rating is above A, use 0.95

Supplementary heat pump

from fiche of heat pump

Seasonal space heating energy efficiency (in %)

( ) - ‘I’) x ‘II’ = + (5) %

Solar contribution AND Supplementary heat pump

select smaller value

0.5 x (4) OR 0.5 x (5) = - (6) %

Seasonal space heating energy efficiency of package

(7) %

Seasonal space heating energy efficiency class of package

G	F	E	D	C	B	A	A+	A++	A+++
<30%	≥30%	≥34%	≥36%	≥75%	≥82%	≥90%	≥98%	≥125%	≥150%

Boiler and supplementary heat pump installed with low temperature heat emitters at 35°C ?

from fiche of heat pump

(7) + (50 x ‘II’) = %

The energy efficiency of the package of products provided for in this fiche may not correspond to its actual energy efficiency once installed in a building, as this efficiency is influenced by further factors such as heat loss in the distribution system and the dimensioning of the products in relation to building size and characteristics.

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I The value of the seasonal space heating energy efficiency of the preferential space heater, expressed in %.

II The factor for weighting the heat output of preferential and supplementary heaters of a package as set out in the following table.

III The value of the mathematical expression: 294/(11 · Prated), whereby 'Prated' is related to the preferential space heater.

IV The value of the mathematical expression 115/(11 · Prated), whereby 'Prated' is related to the preferential space heater.

Tab.34 Weighting of boilers

Psup / (Prated + Psup)[1][2]	II, package without hot water storage tank	II, package with hot water storage tank
0	0	0
0.1	0.3	0.37
0.2	0.55	0.70
0.3	0.75	0.85
0.4	0.85	0.94
0.5	0.95	0.98
0.6	0.98	1.00
≥ 0.7	1.00	1.00

(1) The intermediate values are calculated by linear interpolation between the two adjacent values.
(2) Prated is related to the preferential space heater or combination heater.

14.2 EC declaration of conformity

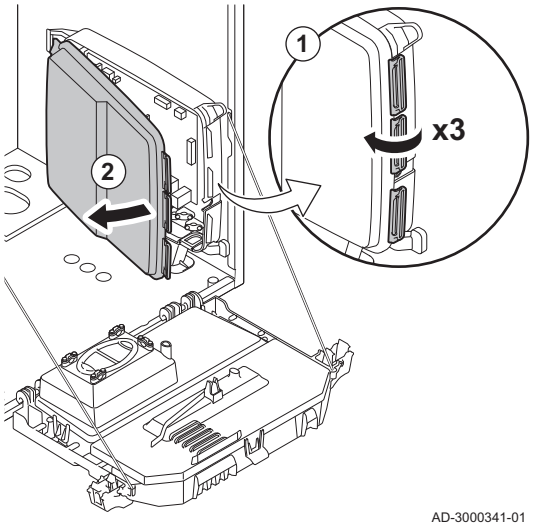
The unit complies with the standard type described in the EC declaration of conformity. It has been manufactured and commissioned in accordance with European directives.

The original declaration of conformity is available from the manufacturer.

14.3 Optional electrical connections

14.3.1 Housing for PCBs

Fig.72 Open housing for PCBs



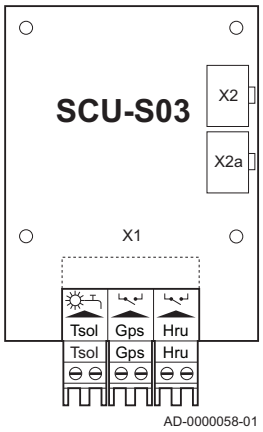
The following PCBs can be purchased as an accessory:

- SCU-S03
- SCU-X02
- SCU-X03
- c-Mix

The PCBs are positioned in the PCB housing. See the instructions provided with the PCB.

1. Unclip the housing cover.
2. Remove the cover.

Fig.73 SCU-S03 PCB



14.3.2 Connection options for the PCB (SCU-S03)

If the boiler is fitted with the PCB (SCU-S03), then this PCB is automatically recognised by the boiler's automatic control unit.

Note
On removing this PCB, the boiler will show error code E·38. To prevent this error, an auto-detect must be carried out after removing this PCB.
For information on carrying out an auto-detect, see: Carrying out an auto-detect, page 51

Connecting the minimum gas pressure switch (Gps)

The minimum gas pressure switch blocks the boiler if the gas inlet pressure becomes too low.

1. Connect the minimum gas pressure switch to the **Gps** terminals of the connector.

The presence of the gas pressure switch must be set using parameter P41.

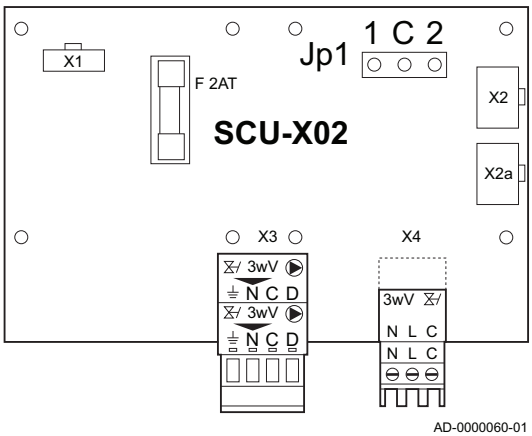
Connecting a heat recovery unit (Hru)

1. Connect the wires from the heat recovery unit to the **Hru** terminals of the connector.

The presence of the heat recovery unit must be set using parameter P42.

14.3.3 Connection options for the PCB (SCU-X02)

Fig.74 SCU-X02 PCB



It is possible to connect a 230 VAC three-way valve or a 24 VAC three-way valve to the SCU-X02 PCB.

Note
The starting position of the three-way valve can be modified using a jumper at Jp1.

Control of external three-way valve (3wV) 230 VAC

The external three-way valve (230 VAC) can be used when connecting an indirectly heated calorifier.

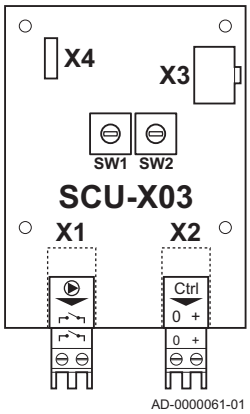
1. Connect the three-way valve to the **X3** terminals of the connector:
   - N = neutral
   - C = central heating
   - D = domestic hot water

Control of external three-way valve (3wV) 24 VAC

The external three-way valve (24 VAC) can be used when connecting an indirectly heated calorifier. The neutral position of the three-way valve can be set using parameter P34.

1. Connect the three-way valve to the **X4** terminals of the connector:
   - N = neutral
   - L = live (24 VAC)
   - C = common (CH or DHW)

Fig.75 SCU-X03 PCB



14.3.4 Connection options for the PCB (SCU-X03)

The SCU-X03 PCB can control a modulating central heating pump. Depending on the make and type of pump, the pump can be controlled by a 0–10 V, 4–20 mA or a PWM signal. The speed of the pump is modulated based on the signal received from the boiler.

Note
For correct connection of the pump, see the documentation supplied with the pump.

Connecting on/off contact

1. Connect the on/off contact of the CH pump to the connector **X1**.

Caution
Do not use the on/off contact to interrupt the power supply to the pump.

Connecting a central heating pump

1. Connect the CH pump controller to the connector **X2**.

Select the type of signal that will be received from the boiler using the rotary knob **SW1** on the PCB. See table below

No.	Description
0	Pump modulation signal
1	Required heat output of boiler
2	Current heat output of boiler
3	–
4	–
5	–
6	–
7	–
8	–
9	–

Caution
- If possible, use the pump modulation signal. This provides the most accurate pump control.
- In positions 3 to 9 the control PCB receives no signal from the boiler and the boiler responds as in position 0.
- If the automatic burner unit does not support pump modulation, the pump will behave as an on/off pump.

Select the type of signal that controls the pump using the rotary knob **SW2** on the PCB. See table below.

No.	Description
0	0–10 V (Wilo pump)
1	0–10 V (Grundfoss pump)
2	PWM
3	4–20 mA
4	–
5	–
6	–
7	–
8	–
9	–

Caution
In positions 4 to 9 the control PCB sends no signal to the pump and the pump will not start up.

14.3.5 Connection options for the PCB (c-Mix)

The c-Mix PCB can control two central heating groups or one central heating group and one calorifier. These groups can be controlled entirely independently of one another. It is also possible to use the c-Mix PCB in combination with one or more boilers in a cascade system.

The connection options for the c-Mix PCB are described in the manual supplied.

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